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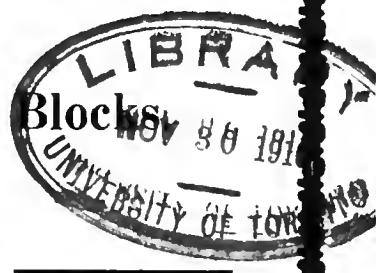
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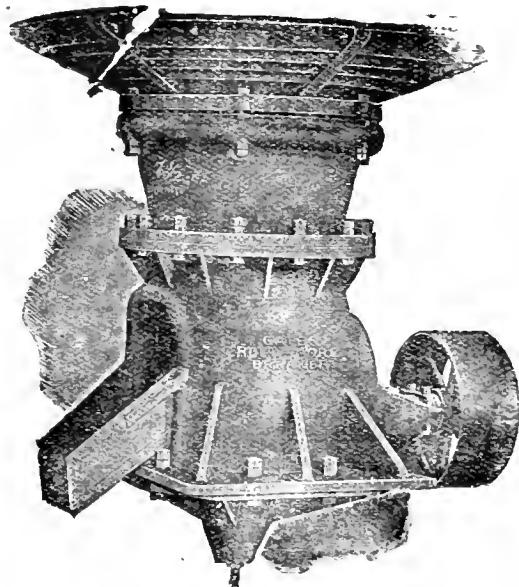
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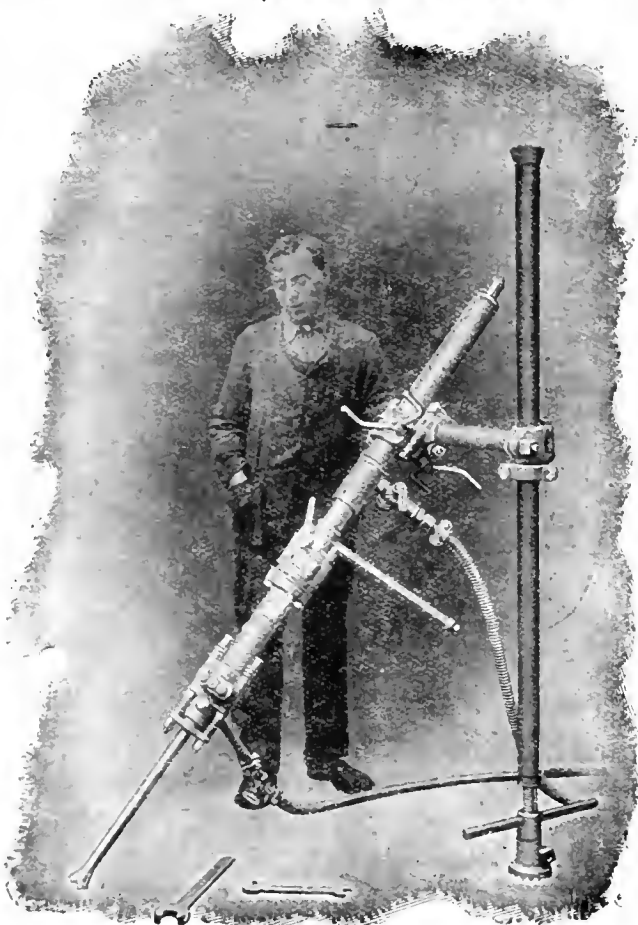
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Notes and News.

A full report of the proceedings at the annual meeting of the Victoria Falls Power Company appears in this issue. At the meeting, Mr. A. E. Hadley, the managing director, dealt at length with recent progress. The earnings of the combined undertakings, he said, for the first eight months of the current year showed the substantial increase of £70,000 over the figures of the corresponding months of 1915. The earnings are now more than sufficient to meet the 6 per cent. interest on the preference shares, and a small amount was available for the ordinary. The directors, however, considered it prudent not to distribute anything more on the present occasion. If revenue continue at the present rate and taxation is not further increased, the ordinary shares should receive a first distribution next year, and a reserve fund should be inaugurated. First debentures fall due for redemption by annual instalments of £165,000 beginning in 1917, the amount being covered by the depreciation charge, so that the ordinary shareholders need not be disturbed on this account. Since the outbreak of war the Germans, naturally, have not been able to collect their debenture interest, and some £287,961 stands to the credit of a suspense account.

* * * *

People in London formerly interested as shareholders in the Sutherland Reef mine are being invited to put up more cash, "because undoubtedly as soon as the South Africans return from the conquest of German East Africa a boom will take place" in South African mining shares, "continuing with increased vigour when the end of the present war is in sight." The *modus operandi* is this: A concern called the South African Mining Syndicate is now "negotiating for the property," and the public is being asked to take the Syndicate shares at "a nominal cost" in the shape of option money. The shares are of the nominal value of 5s., and will cost in all 1s. 3d., "and are likely to be soon worth several times that amount." The London papers are warning their readers against the scheme.

* * * *

A signal example of American enthusiasm for the British cause is to be found in the career and the death of Second-Lieutenant Harry Butters, R.F.A., who came from California to give all that a man has for the honour and victory of the British arms. He was the only son of the late Henry Butters, of Alta Vista, San Francisco, and the nephew and heir of the mining engineer, Mr. Charles Butters. His education began, as a writer in the *Observer* recalls, in California; but later he came to England, and was at Beaumont College. There lay at his feet in California all that for many men makes life desirable. He was born to wealth. In the management of his father's property there was work to his hand which he could do well and enjoy. He had all the good gifts of youth. He was a tall, active fellow, with good looks and high spirits. He relished all kinds of sport; but when the news of the war came he put pleasures and prospects away from him and threw his life into the struggle against the barbarian. He was then 22. In the early months of 1915 he arrived in England, and got his first commission in the 11th Royal Warwickshires. His skill in science and his mechanical faculty afterwards found more scope in the artillery. He was killed at the front on August 31.

* * * *

From a United States contemporary we learn that "Consul Edwin N. Gunsaulus, at Johannesburg, Union of South Africa, reports the following on the proposed Far East Rand development under date of June 20:—
"Under date of May 17, 1916, a report was transmitted by

the Johannesburg Consulate concerning the potentialities and proposed development of the gold areas of the Far East Rand; also the likelihood of the investment of a large amount of American capital in this enterprise. It had been hoped and confidently expected by many interested in the early development of these goldfields that Parliament would pass a Bill empowering this work to be proceeded with at a very early date; but just before adjournment it was decided that the matter should go over until the next session, and that in the meantime a Commission should be appointed to take evidence on certain points at issue. Within the last month or two there has been considerable agitation in favour of the development and operation of the Far East Rand gold areas being undertaken by the Government rather than by private means, and the postponement of definite action until the next session is obviously for the purpose of going more thoroughly into the question of State mining, which is considered to be one of great importance and deserving of further inquiry. As the matter now stands, a Commission will be appointed to take evidence and make recommendations as to the methods that should be employed to most effectively develop the Far East Rand gold-bearing areas, at the same time having proper regard for the Government's interest. This Commission will, of course, give due consideration to the question of State mining—a plan that, while having many adherents, is strongly opposed by a large number of people, who are of the opinion that gold-mining operations, which as a rule are speculative in character and uncertain as to outcome, should be left to private capital and enterprise under such regulations and conditions as will insure due protection of the Government's interests. All seem to be in agreement as to the desirability and advisability of opening up these gold areas at the earliest practical date; and while considerable disappointment is felt on the Rand that definite action looking to this development was not taken at the Parliamentary sessions just closed, there is little doubt that at the next session the necessary legislative steps for the early working of these important fields will be taken."

* * * *

According to the last annual report of the Inspector of Mines for the Boksburg district, increased attention has been devoted to the spraying of sands dumps to prevent the blowing about of the loose sand. There are two methods employed, involving the spraying with black loam called "turf" and ordinary current slimes. The black loam method has been initiated by the East Rand Proprietary Mines, and any mine employing this method is subjected to a royalty of 1d. per ton during the first month. This has caused a certain amount of imitation on the part of other mines. "There have been numerous opportunities during the year of comparing the two methods, and there is absolutely no doubt but that the E.R.P.M. method is far superior to the slime treatment. In fact in hot windy weather the dumps treated with slime show worse results than they did before they were subjected to treatment. The cooling of slime on an unstable and absorptive foundation appears to powder under the influence of a hot wind, and blows about like a column of smoke, rising to much greater heights than ordinary sands, with resultant contamination of a larger area of atmosphere than formerly."

* * * *

The trade statistics of the Union for the eight months ended August, which have just been issued by the Customs Department, show that the buoyancy of our overseas commerce is being well maintained. The brief summary of the returns for the nine months ended September 30, which were published this week, tell the same story. Indeed, in September our imports totalled very nearly four millions in value, and our exports, exclusive of gold, £1,346,809. Pending the publication of the

detailed returns for the three-quarter year, we shall refer to-day to the August statement only. In the eight months our imports totalled £27,222,721, an increase of 5½ millions sterling, or 25 per cent. on the values for the corresponding period of 1915, while exports of South African produce, again exclusive of gold, totalled an increase of approximately 2½ millions, or nearly 28 per cent. In the case of exports, the large increase is mainly explained by the revival of the diamond industry. We have sent overseas in the past eight months diamonds valued at £2,422,338, as against a value of £393,000 in 1915. Another direction in which the value of our exports has increased is in the case of wool. The figures in this regard are very striking. In eight months of the current year we exported approximately 98 million lbs. of wool, the export value being £4,110,783. In the same period of last year we exported 121 million lbs., the export value of which was only £3,587,000.

* * * *

The national advantage of holding premier rank among the world's metal-producing countries has been accentuated by the war. To both belligerent and neutral nations the control of the output of any metal has become an important asset, either through supplying domestic needs or by increasing revenue through sales to neighbours less fortunately situated. The international scramble for metals has directed attention most forcibly to the sources of the world's metal supply, and has brought into prominence some of those that hitherto have been obscure or relatively unimportant. Among precious metals, 60 per cent. of the world's production of gold is (says the *Financier*) controlled by Great Britain. The United States holds second rank with 30 per cent. In pig-iron and steel the United States easily holds first rank with an average production of about 40 per cent. of the total. Germany follows with about 25 per cent., Great Britain is third, and France and Russia divide fourth place. The United States stands pre-eminent in the production of copper, lead and zinc. Of late years America has produced about 55 per cent. of the world's output of copper. The States produce about one-third the total of lead and about 30 per cent. of the zinc in normal times.

* * * *

The report of the New Rhodesia Mines for year to May 31 last states: Rhodesian properties.—**New Rhodesia Mines.** The properties owned by the company now consist of 80 mining claims, 10 having been abandoned since the last report, one-half interest in the Kameel mine (50 claims), a farm of 6,000 acres, and a half interest in a coal area situated 100 miles north-west of the Eldorado railway terminus. The directors regret that the letting on tribute of the Howard, Old Bulawayo, and Kameel claims mentioned in the last report did not lead to satisfactory results, and the tributes were given up. Negotiations, however, are now in progress for the re-letting of the Old Bulawayo and Kameel claims on a reduced royalty. Lead and Zinc Mines in Norway.—"Husvik."—The two companies in which the New Rhodesian Company was interested have proved unsuccessful, being under German control. This interest, therefore, has been written off in the profit and loss account for the year. Porcupine Krist.—A fresh option agreement has been entered into between this company and the Auxiliary Syndicate, Ltd., covering a period up to August, 1917, which, if exercised, will considerably benefit the company. East Kent Colliery Company.—The scheme of reconstruction not having been carried through before June 30, 1916, the holding of debentures issued by the East Kent Colliery Company has been disposed of since the close of the last financial year at 40 per cent. as agreed. The loss in respect of these debentures has been taken into account in the profit and loss account.

TOPICS OF THE WEEK.

MORE VIEWS ON STATE MINING.

THE State Mining Commission is to be congratulated on its success in eliciting the views of quite a number of notables in the mining world. Amongst those who submitted their views during the week were Mr. E. A. Wallers, President of the Chamber of Mines, Dr. E. T. Mellor, Mr. G. D. Stollreither, Mr. D. C. Greig, Chairman of the Stock Exchange, Dr. Voskule, Mr. K. Sartorius, and Mr. W. J. Wybergh. The views of Mr. Wybergh, as reported in the daily papers, add nothing to our knowledge of the subject, as gleaned from his speeches made during the course of the recent agitation against the Mining Leases Bill. Dr. Mellor's evidence was given too late in the week to be dealt with in this issue. Mr. Sartorius and Mr. Stollreither painted none too alluring a picture of State mining on the Continent, and their evidence should carry great weight as dealing with the actual results of the principle of State control in practice. By reason of his official position, the views of Mr. E. A. Wallers call for special notice. Mr. Wallers put it to the Commission that if the Government entered the field at all they would have to make themselves responsible for the whole area available, since, if they took the cream, they could not expect private enterprise to relieve them of the skimmed milk. He estimated that for the Government to deal with the scheme as a whole would necessitate the provision of a capital of probably 40 or 50 millions. He doubted how far such an undertaking could be considered practical politics, more especially at a time like the present. He asked, when the State can get 60 per cent. of profit without risk, is it worth while risking millions of public money to get the other 40 per cent.? Presumably they would raise the required capital by loan on the credit of the whole country, and to-day money exacted a very large return, and would in the future continue to do so. He was assured that such a loan could not be raised under 6 per cent. He could not conceive any inducement for the State to depart from the principle it had carried on all these years of allowing the gold mining industry to develop on the present lines. All that the State could gain was the amount of profit that went to the shareholder. The proportion of the remainder of the money that had been spent in developing and generally working the industry went back to the Government in revenue direct or indirect to the extent of approximately 70 per cent. On the other hand, the disabilities and dangers of mining appeared to him to be many, and to be such as might seriously react on the mining industry, which was to-day providing the State with that revenue. The initiation of State gold mines would, he took it, mean the establishment under democratic conditions of a compact body of voters for whom all political parties would desire to act in co-operation, and whom they would desire to conciliate as far as possible. That would give rise to many possible dangers. The only possible reason, Mr. Wallers said, he could imagine for the State to depart from its present principle was that no offers of private enterprise were forthcoming for the Far East Rand. Several other equally sound reasons were set out by Mr. Wallers against State mining; but enough has been quoted to show that, practically, the proposal has not a leg left to stand upon. This should be the last country in the world, owing to its colour problems, to adopt Socialistic nostrums; the only advocates of which, as evidence led before the Commission shows, are amiable cranks and faddists. Nevertheless we are not disposed to join the critics who can see no use in the appointment of this Commission of enquiry by the Government. The recent outcry raised by a certain

noisy section, coupled with the wilful confusion of the principle of State mining with "ousting foreign capital," undoubtedly did embarrass the Government and perplex the people. The evidence adduced before the Commission and the admirably judicial spirit of the enquiry should serve to dispel the mists and doubts on the subject. Moreover, the daily papers are reprinting the evidence on both sides pretty fully, so that the good sense of an enlightened public, weighing the relative authority and antecedents of the witnesses, has doubtless already anticipated the findings of the majority of the Commission.

A COAL BY-PRODUCTS INDUSTRY FOR SOUTH AFRICA.

AN interesting paper on a coal by-products industry for this country was read before the South African Institution of Engineers last Saturday night by Mr. S. B. Billborough, and led to an equally interesting discussion. The latter was contributed to by the President, Mr. B. Price, and by Messrs. T. G. Otley, Andrew Crosse, E. J. Laschinger, and Kenneth Austin. We hope to reprint, at some future date, the views expressed by these speakers; and trust we may not be over-stepping the bounds of secrecy imposed on those present if we mention that healthy differences of opinion on some essential points were developed in the course of the debate. The Institution, needless to state, is doing excellent work by devoting its enquiries to this subject of eminently practical importance, and we can only hope that in the process of dialectic the truth will be reached in respect of the questions at issue. The Transvaal Coal Owners' Association, for instance, would doubtless welcome conclusive scientific opinion on the subject, and the whole country stands to benefit from a successful beginning being made—say by the Natal Ammonium people—with an industry of such enormous promise. Meanwhile, it is noteworthy that the very questions that are exercising our engineers and chemists are forming the subject of enquiry by scientists in Great Britain. The first report of the British Association Committee on Fuel Economy, presented in mail week at the Newcastle meeting, has much to say in regard to it. Fuel economy, which is the prime object of the deliberations of this committee, involves a total revolution in present methods of utilisation of coal as well as a complete change, in many cases, in methods of winning it. These are the questions which the committee will proceed to consider, and such is the magnitude of the work that it has been deemed necessary to subdivide it by the appointment of sub-committees, five in number, to investigate each department separately. The Carbonisation Sub-Committee has some useful investigations in progress, mainly on the statistical side in the first instance, the object being to ascertain what economies in the recovery of by-products are possible. We shall look forward to the results of their enquiries into the present condition and prospects of low-temperature carbonisation, upon which point there is at present a remarkable lack of information, which is all the more astonishing in view of the numerous processes known to be on their trial, and the promising results that have been foreshadowed. With regard to by-products, the report points out that the public cannot be too often reminded that not only is coal of prime importance as a fuel, but also that, when suitably handled by the chemist, it yields very valuable by-products, which are the raw materials for the manufacture of both synthetic dyes and drugs and certain high explosives. Another important by-product obtainable is ammonia in the form of sulphate, which is chiefly used as a fertiliser in the production of foodstuffs. The use of artificial fertilisers, including ammonium sulphate, by agriculturists in Great Britain is still in its infancy, and the near future ought to see a large expansion in the home demands for nitrogenous fertilisers. Among other products obtainable by the low-temperature distillation of coal are liquid hydrocarbons of the paraffin and naphthene series, and it is probable that large quantities of "motor spirit" could be manufactured from coal. There

is no doubt that we have not been sufficiently alive to the importance of recovering such by-products from the raw coal raised, and that we have been very much behind Germany in this respect. Thus, for example, whilst in the coking industry modern by-product recovery plants had been universally installed years ago throughout Germany, Great Britain was, in 1913, still carbonising about six and a-half million tons of coal annually for metallurgical coke in old-fashioned beehive ovens. Also, whereas the British total production of ammonium sulphate from coal was in 1913 about 318,000 tons, Germany produced nearly half a million tons from a very much smaller output of coal. The community needs to be reminded that progress in fuel economy involves something more than increased thermal efficiency in respect of power production and of heating operations generally, important as these undoubtedly are. It also involves the whole question of the better utilisation of coal, including the recovery of by-products. The reports adds:—

Again, with regard to the coking industry, the Carbonisation Subcommittee has already undertaken steps to secure a complete return of the number of by-product recovery ovens installed and working throughout Great Britain, the character of each installation (whether waste heat or regenerative), its coking capacity, the description of the recovery plant connected with it (whether direct or indirect), the number of benzol recovery plants in operation, the quantities and yields of the by-products obtainable, and the purposes for which waste heat and surplus gas are being employed. When completed this return will enable the committee to arrive at an approximate estimate of the margins of possible economies in the shape of improved utilisation of the coal carbonised which can now be effected in the coking industry and the directions in which further progress is likely to be made. A memorandum is also in course of preparation describing the more important developments of the by-product coking industry, from its inception until the present day. With regard to gasworks practice, enquiries have been instituted regarding the present practice in connection with the manufacture of towns' gas, and for this purpose the Institution of Gas Engineers is officially represented on the sub-committee. It is also intended later on to consider the question of low-temperature carbonisation from the point of view of its possible economic results, but up to the present time so little authentic information is available that the committee would welcome the offer of proper facilities to enable them to investigate the matter.

In the course of the discussion on the report, Professor Henry Louis said:—

Chemists were blaming the engineer because he used coal purely and simply as a source of fuel, and did not go to work to save the 2 per cent. or so of nitrogen in the coal. Did the chemist reflect that that coal had cost money, and that the chemist had as much atmosphere as he liked, for nothing, with 80 per cent. of nitrogen in it? If the chemist wasted 80 per cent. the engineer surely could be allowed to waste 2 per cent. However, there were probabilities that before long that problem would be solved, and the chemist would then say that he wanted the other by-products from coal. Was it quite beyond the realms of imagination that it would be possible to utilise small coal and other waste coal and produce these various by-products synthetically. That was for the chemist. The chemist, however, must remember that it was necessary to come down to hard business facts. Coal was not mined for "fun." Out of 250 million tons, he did not believe one single ton was raised for scientific purposes, but all for the purpose of making money. It was necessary to look at the cheapest way to continue the work, because to produce these various by-products meant putting up an exceedingly expensive plant, and since, owing to the war, interest on capital had risen something like 50 per cent. more than it was before, the question of providing this plant became a serious problem, and the manufacturer might well pause before he invested such big capital sums when there was the possibility that before long the chemist would invent some method of making all this plant useless by direct synthetic methods.

This seems to us a very common-sense comment, equally applicable in South Africa as in England. And it is a significant and welcome fact that our scientists should be investigating the question simultaneously with those in the Mother Country.

THE DECIMAL SYSTEM.

In discussing the future of Empire commerce after the war, one of our most successful captains of industry recently remarked to us that no conceivable reform offered greater promise than the introduction of the decimal system. It will be remembered, also, that the Chairman of the National Bank, the Hon. Hugh Crawford, at the last annual meeting of that institution, went out of his way to urge the neces-

sity for this most pressing of Imperial reforms. We are glad to note, therefore, that a feature of the sittings of the Economic Science Section of the British Association in mail week was the inclusion of a paper advocating the adoption by Great Britain of the decimal system of coinage, weights and measures. Not the least significant fact attending this innovation—for we believe the subject has not been touched upon by the British Association for many years—was the identity of the author of the paper, Sir Richard Burbidge, who, as the managing director of one of the most successful "stores," has attained a position of the highest standing in London commercial circles. The reader of the paper, in the absence of the author, was Dr. Hunter, of the well-known Tyneside firm of Swan, Hunter and Wigham Richardson, Ltd., who in the main agreed with Sir Richard's conclusions. Moreover, Mr. Gerald Stoney, President of the Engineering Section, strongly supported the proposal, and Sir Henry Cunningham, the well-known economist, also advocated the adoption of the decimal system by Great Britain, in conjunction with the rest of the English-speaking world. Mr. Goriel, an Australian delegate, stated that Australia and New Zealand were only waiting for the Mother Country to move, and Professor A. W. Kirkaldy, President of the Section, also urged that the Anglo-Saxon world should set together in bringing about this much-needed reform. Dr. Hunter discussed the subject from the point of view of commercial competition, particularly in the period following the war. He said that to obtain openings for British goods we must use the metric system. The Overseas Dominions were ripe for the change. Amongst the benefits in the home country, if the reform were adopted, he estimated a year of school period now wasted in teaching arithmetic. There would also be a great saving in book-keeping and clerical work. In shipbuilding they had adopted the decimal system for all their calculations, and without it they could not succeed. The advantages of being in line with those with whom we were to do business far outweighed any objection. In regard to coinage, the line of least resistance would be to retain the pound and the florin. A beginning, he considered, should be made without delay. The simplest change was of the coinage, and they might begin the reform of weights and measures which were in common use in our commercial dealings with foreign countries. Mr. Gerald Stoney (President of the Engineering Section), in strongly supporting the change, contended that it was absolutely necessary. He mentioned that one firm of turbine engineers at Hartlepool had adopted the metric system throughout their works. When, however, they began to do work for the Admiralty they were compelled to use the existing system. But in practice there had been no difficulty in working the two side by side, which was a valuable piece of experience, suggesting that the change might be made gradually. Apart from these views, it is satisfactory to note that British public opinion is steadily veering round to the change; the Council of the Institution of Electrical Engineers has definitely declared in its favour, and other public bodies have expressed their approval, while Press references to the subject grow continually more frequent. Thus a leading article in the *Daily Telegraph* in mail week, on "Necessary Reforms," concludes with this admirable summary: "Germany and Austria-Hungary recognised many years ago the virtues of the decimal system. Their policy of uniformity conferred no slight benefit upon them in their relations with foreign markets. When peace comes it is imperative that this advantage should not any longer be theirs to our injury. This is essentially a matter for the trading communities. Their interests are menaced by adherence to a currency and system of weights and measures which hinder trading. We are inclined to the belief that, as in other reforms, the necessary changes would prove far less disturbing than is sometimes anticipated, since the movement would be from chaos to order. Once the reforms were carried out, our only wonder would be that we had so long been blind to their advantages." South Africa in general, and the Rand in particular, will watch for an early sign that the people at Home realise the importance of this reform.

£10,000,000 BRITISH TRADE BANK.

Big Financial and Commercial Scheme Formulated by the Committee on Trade After the War—A Bureau of Information to be a Leading Feature—Views of Leading Authorities.

AN important and far-reaching proposal is made in the report, issued recently, of the Committee, presided over by Lord Faringdon, which was appointed to consider the best means of meeting the needs of British firms after the war. The Committee—which, it may be recalled, included Mr. F. Huth Jackson, Mr. W. H. M. Goschen, Sir W. H. Clark, Mr. R. V. Vassar-Smith, Mr. Algernon Mills, Mr. Walter Leaf, and Mr. B. P. Blackett—recommends the formation of a bank, to be called "The British Trade Bank," with £10,000,000 capital, and to be constituted under a Royal Charter.

THE SCHEME.

The following is the outline of the scheme:—(1) A British Trade Bank shall be constituted with a capital of £10,000,000. The first issue should be from £2,500,000 to £5,000,000, upon which, in the first instance, only a small amount should be paid up, but which should all be called up within a reasonable time. A further issue should be made afterwards, if possible at a premium. (2) It should not accept deposits at call or short notice. (3) It should only open current accounts for parties who are proposing to make use of the overseas facilities which it would afford. (4) It should have a foreign exchange department where special facilities might be afforded for dealing with bills in foreign currency. (5) It should open a credit department for the issue of credits to parties at home and abroad. (6) It should enter into banking agency arrangements with existing Colonial or British foreign banks wherever they could be concluded upon reasonable terms, and where such arrangements were made it should undertake not to set up for a specified period its own branches or agencies. It should have power to set up branches or agencies where no British-foreign bank of importance exists. (7) It should inaugurate an information bureau. (8) It should endeavour not to interfere in any business for which existing banks and banking houses now provide facilities, and it should try to promote working transactions on joint account with other banks and should invite other banks to submit to it new transactions, which, owing to length of time, magnitude, or other reasons, they are not prepared to undertake alone. (9) Where desirable it should co-operate with the merchant and manufacturer, and possibly accept risks upon joint account. (10) It should become a centre for syndicate operations, availing itself of the special knowledge which it will possess through its information bureau. (11) It should receive Government assistance.

NEED FOR PROMPT ACTION.

"We are of opinion," states the committee, "that there are strong reasons why the bank should be formed without delay, so that preliminaries may be completed before the war is over. Our enemies are sure to make at the earliest moment strenuous efforts to regain their position in the world of commerce and finance, and it may well be that when peace comes unemployment may be rife at home unless new markets are exploited. It seems to us desirable, therefore, to ascertain in advance the requirements of foreign countries and the whereabouts of raw material for our industries." While bankers in the past have been willing to provide large amounts of capital, our present arrangements are faulty, because facilities are not co-ordinated. That is why the committee proposes the formation of the new institution. It is pointed out that the bank could take a leading part in the inception of transactions, and assist in connection with the machinery of overseas business. "It would be essential in conducting business with manufacturers and merchants that the institution should draw and accept bills, and it should generally be in a position to undertake credit operation."

A BOON TO BRITISH TRADE.

The Committee believes that such a bank, with efficient management, should not only be a great boon to British trade, but should prove a commercial success. Emphasis is laid upon the necessity of the bank's having vigorous young men to push its affairs in every part of the globe. If industry is to be extended, the report states, it is essential that British products should be pushed, and manufacturers, merchants, and bankers must combine to push them. The British manufacturer might be frequently in want of finance a British joint-stock bank could not prudently provide, whereas the German banks had afforded special assistance at the inception of undertakings of a varied description. The new bank might make advances for the extension of existing manufacturing plant, or for the amalgamation or co-ordination of certain works, so as to reduce the cost of production. It would assist these works to obtain orders abroad, and give them reasonable financial facilities for executing these orders.

INFORMATION DEPARTMENT ESSENTIAL.

The institution, proceeds the report, must be equipped with an up-to-date information department, and this will of necessity play a large part in its usefulness and financial success. This might properly be called a bureau d'études, independent of the commercial intelligence branch of the Board of Trade, but in close touch therewith, and under agreement entitled to all possible facilities. The information bureau should be independent of the Board of Trade, but in close touch with it. If financial assistance was given by the Government to undertakings in connection with "key" industries, the business should be done through the new bank. The personnel of the institution would call for great discrimination. An executive committee, consisting of the whole-time chairman and three managing directors, would appear to be essential. There would probably be three distinct departments—financial, industrial, and commercial. The departmental chiefs would draw good fixed salaries, and would be entitled to substantial share in the profits. There should be a general board of directors, composed of men with banking, financial, industrial, and commercial knowledge, and in close touch with the leading industries of the country.

OPINION OF LLOYDS BANK CHAIRMAN.

Discussing the scheme with a press representative, Mr. Vassar Smith, chairman of Lloyds Bank and a member of the Board of Trade Committee, said: "The most valuable part of the proposed bank, in my opinion, will be the information department. This will not deal with schemes, but rather institute inquiries into schemes which are submitted to it. The Committee found not a single tittle of evidence to justify the universal outcry that British trade abroad has suffered through lack of ordinary banking facilities. The financial part of the proposal is intended rather to supplement existing facilities by way of granting aid over longer terms than are usually granted by banks. It is not proposed, for the purpose of acquiring information, to establish a staff of permanent officials, but to work in close touch with the existing Intelligence Department of the Board of Trade, and to secure the aid of our Consular service, which will require to be considerably improved for the purpose. As occasion arose, also, we should obtain expert advice, say, of engineers, who would, of course, be specially paid. As a member of the Committee, I naturally approve warmly of the scheme."

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POSITION AND PROSPECTS OF DAGGAFONTEIN MINES.

Points from Initial Annual Reports.

THE report of the directors of the Daggafontein Mines, Ltd., for the period ended 31st August, 1916, states that the first general meeting of shareholders has been called for the 15th December in order to comply with Section 61 of the Transvaal Companies Act, which prescribes that a meeting of shareholders must be held once in each calendar year. In terms of the articles of association, the financial year of the company ends on the 31st December. The books will therefore again be closed at the end of the year. The company was registered under the Transvaal Companies Act, 1909, on the 28th March, 1916. In terms of article 3 of the company's articles of association, the following agreements were entered into on the 10th day of April, 1916:—(1) With the Daggafontein Gold Mining Company, Ltd., as vendors; (2) with the Consolidated Mines Selection Company, Ltd., for the provision of working capital. The capital of the company stands at £530,000, divided into 530,000 shares of £1 each, allocated as follows:—(1) Issued as fully paid to vendors in terms of agreement No. 1, 398,033 shares; (2) issued at par to the Consolidated Mines Selection Company and nominees in terms of agreement No. 2, 100,000 shares; (3) held in reserve, 31,967 shares; total, 530,000 shares. Under the agreement with the Consolidated Mines Selection Company, that company undertakes when called upon, within a period of two years, to provide £200,000 further working capital against the issue at par of 200,000 shares. The agreements also cover the following options granted:—To the Daggafontein Gold Mining Company, Ltd.: For three years at par on 134,126 shares; to the Consolidated Mines Selection Company, Ltd.: for three years at par on 115,874 shares; for four years at 22s. 6d. on 125,000 shares; for five years at 25s. on 125,000 shares—365,874 shares; total number of shares under option, 500,000 shares. The periods of the above undertaking and options are calculated from 28th March, 1916. In order to enable your directors to give effect to the provisions of the agreements, they are empowered under the articles to increase the capital of the company by £670,000. The assets acquired from the vendors were as follows:—Freehold portion of the farm Daggafontein No. 25, situated in the mining district of Boksburg, Transvaal, in extent 4,363 morgen 326 square rods. The property has been transferred into the name of the company, and the titles are in order. Discoverer's claims, numbered 1 to 179, situated on the farm Daggafontein No. 25, held under Discoverer's Certificate No. 236. The claims have been registered in the name of the company. In addition to the above, the company acquired certain fixed and liquid assets, which are included in the appended summary of assets taken over:—Freehold portion farm Daggafontein No. 25 and 179 discoverer's claims, £53,295 6s. 1d.; farm buildings and improvements, £709, shaft, boreholes, buildings and surface equipment, £311,590 18s. 7d.; stores and materials, £1,921 6s. 10d.; cash, £516 8s. 6d.; total, £398,033. The values placed against the assets are those appearing on the schedules received from the vendors, and, with the exception of the freehold property, represent actual expenditure. The value placed against the property is an arbitrary figure arrived at by deducting the actual expenditure on shaft, buildings, etc., from the total consideration paid to the vendors. The actual cash receipts and expenditure from the inception of the company to the 31st August were as follows:—Receipts: Working capital, 61,500 shares, 10s. paid, £32,250; 35,500 shares, fully paid, £35,500; total, 100,000 shares, £67,750; cash taken over from vendors, £546 8s. 6d.; sale of surplus water, £97 2s. 3d.; interest received and sundry revenue, £435 11s. 1d.; total, £68,799 5s. 1d. Expenditure: Transfer duty, etc., £8,110 7s. 1d.; shaft sinking, permanent haulage ways and equipment, £28,897 9s. 6d.; general expenses—capital duty, £1,325, preliminary expenses, etc., £4,152 8s. 11d.—£5,177 8s. 11d.; balance, being cash and cash assets after deducting sundry creditors, £29,983 19s. 4d.; total, £68,799 5s. 1d. It will be noted that of the assets

taken over from the vendor company cash only has been included in the above statement. Surplus water pumped from the mine is disposed of to the Rand Water Board under agreement.

CONSULTING ENGINEER'S REPORT.

The consulting engineer, Mr. C. E. Knecht, writes:—"I have much pleasure in handing you the report of your mine manager covering the period from the resumption of operations to the 31st August, 1916. The small amount of work so far accomplished does not justify the expression of any definite opinion as to future prospects, but there is ground for encouragement in that for a fair percentage of the footage driven high assay values have been disclosed, the width of reef, however, being narrow."

MANAGER'S REPORT.

The manager, Mr. H. W. Pridgeon, writes:—"After overhauling the plant the dewatering of the shaft by means of baling water was commenced, the bottom station at 3,580 feet being reached on the 18th April. The water baled during that period was 26,858,000 gallons. During May the shaft station was cut, and development was started in June. The total footage accomplished during the period amounted to 777 feet, of which 360 feet were sampled, averaging 41.12 dwts. over 4.61 inches. Of the footage sampled 36.1 per cent. was in payable areas, the average assay value being 73.99 dwts. over 4.85 inches. The following tabulation gives details of all development work accomplished during the period:—

Working Place.	Total Footage.	Footage on Reef	Footage Sampled.	Reef Width. Inches.	Assay Value. Dwts.
North Haulage	230	132	120	4.88	26.16
East Haulage	188	178	145	4.24	63.71
West Haulage	33	—	—	—	—
Station and Station Roadways	305	101	95	4.84	29.94
Crosscuts	21	—	—	—	—
Totals & Averages	777	411	360	4.61	41.12

No. 2 shaft is located 6,000 feet west of the No. 1 shaft. The collar set has been completed and the shaft has been sunk to a depth of 16 feet from the surface. The water pumped to the end of August was 42,353,000 gallons. The water baled to the end of August was 52,394,220 gallons. Total water pumped and baled, 94,747,220 gallons. Sold to Rand Water Board, 6,281,000 gallons. Two blocks of single quarters, each containing four rooms, have been erected. The building of a new native compound has been commenced."

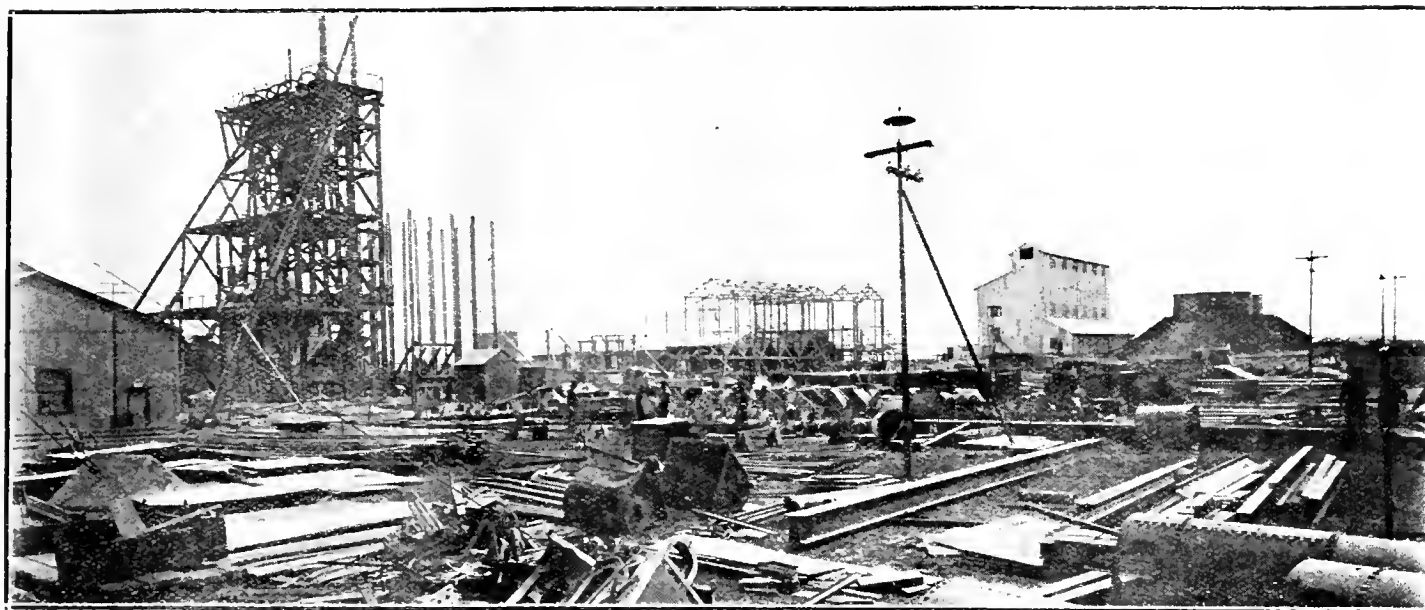
Nobel's Explosives: Amalgamation Rumours.

A Glasgow correspondent writes: "It is current in good quarters in Glasgow that a proposal is under consideration for the amalgamation of Nobel's Explosives Company with another similar concern. Very heavy buying of shares took place in Glasgow Exchange. Recently Nobel's Dynamite Trust was dissolved and the Germany company acquired the interests in Germany and the Glasgow company took over the British interests. As a consequence the Glasgow company will now be able to win the whole of the extensive trade with Australia and other colonies which hitherto had been supplied from Germany."

MINING EXAMINATIONS.

Study for Certificates as Mine Captains, Mine Managers, Surveyors, Mechanical and Electrical Engineers, and Engine Drivers. Private Tuition and Correspondence Lessons, where personal tuition is impracticable. Practical Mathematics and Electrotechnics. E. J. MOYNIHAN, Consulting Engineer, Cuthbert's Buildings, corner of Eloff and Pritchard Streets, Johannesburg, P.O. Box 2061.

SPRINGS MINES NEW CONSTRUCTION WORK.



SHOWING HEADGEAR IN THE FOREGROUND AND MILL IN BACKGROUND.

Photo by A. Watson.

PROGRESS OF THE "C.M.S." SUBSIDIARIES.

Points from the Quarterly Reports of the Springs, Brakpan and Daggafontein Mines.

THE directors' quarterly report on the Springs Mines for the period ended 30th September, 1916, shows that the development so far accomplished is as follows:—For quarter: Total footage, 5,343; footage on reef, 3,211; footage sampled, 3,250; reef width, 17.81 inches; assay value, 18.96 dwts. Previously reported: Total footage, 43,111; footage on reef, 26,299; footage sampled, 29,495; reef width, 19.22 inches; assay value, 18.25 dwts. Totals and averages: Total footage, 48,454; footage on reef, 29,510; footage sampled, 32,745; reef width, 19.08 inches; assay value, 18.31 dwts. Of the footage sampled during the quarter, 53 per cent. was in payable areas and averaged 23.34 dwts. over 25.73 inches. A similar analysis of the total development to date shows 51 per cent. of payable footage, averaging 25.38 dwts. over 24.29 inches. An estimate of the total tonnage indicated by development accomplished to 30th September, 1916, shows:—Payable, 1,671,000 tons at 9.95 dwts.; unpayable, 2,017,000 tons at 1.75 dwts. The payable tonnage is calculated over an average assumed stoping width of 56 inches, and represents 45.3 per cent. of the total. Work on the reduction plant continues to make good progress, and, unless unforeseen circumstances intervene, milling should start about the end of the year. The Rand Water Board took 57,245,000 gallons of water during the quarter. The option on the 50 shares which was still in abeyance at 30th June last, not having been finally exercised by the holder, these shares were issued to the guarantors under the loan agreement. The issued capital of the company now, therefore, stands at £915,000.

BRAKPAN MINES.

The directors' quarterly report of the Brakpan Mines for the period ended 30th September, 1916, states:—The following were the results obtained from reduction operations during the quarter:—Milling: Ore hoisted from mine, 202,902 tons; ore from surface dump, nil; ore sent to crushing and sorting station, 203,172 tons; percentage of waste sorted out, 12.673 per cent.; average number of stamps running, 140; net running time, 81.132 days; ore milled, 176,900 tons; milling duty per stamp per 24 hours, 15.574 tons; yield in fine gold, 42,011 ozs.; yield per ton milled in

fine gold, 4,750 dwts. Cyaniding: Tons treated, 174,505 tons; yield in fine gold, 23,564 ozs.; yield per ton treated in fine gold, 2,701 dwts. Summary: Yield in fine gold—Mill, 42,011 ozs., equal to 4.750 dwts. per ton milled; cyanide works, 23,564 ozs., equal to 2.664 dwts. per ton milled; total, 65,575 ozs., equal to 7.414 dwts. per ton milled. Gold realization—additional war charges, £2,592 17s. 7d.; balance of profit carried down, £102,718 9s. 8d.; revenue, £105,311 7s. 3d.

DAGGAFONTEIN MINES.

The directors' report of the Daggafontein Mines, for the period ended 30th September, 1916, shows that details of development for the period from the resumption of operations to 30th September, 1916, are as follows:—Total footage, 1,153; footage on reef, 692; footage sampled, 645; reef width, 4.90 inches; assay value, 37.79 dwts. Of the footage sampled during the period, 34.9 per cent. was in payable areas and averaged 72.26 dwts. over 5.09 inches. The sinking of No. 2 shaft, which is situated 6,000 feet west of No. 1 shaft, has been taken in hand. During the period under review, 50 feet of sinking was accomplished, of which 34 feet were timbered. The Rand Water Board purchased 10,142,000 gallons of water during the period. The erection of two additional blocks of single quarters for white employees has been completed, and a new native compound commenced.

Kynoch Meeting.

Presiding at the annual meeting of Kynoch, Ltd., at Birmingham, Mr. Arthur Chamberlain said it had been impossible for them to produce a balance sheet, as they were quite in the dark as to the amount of taxation incurred. He had reason for believing that companies such as Kynoch's, who had done a great deal of work for the nation in a time of emergency, would be treated fairly. He recently saw something about an armament ring, which, the writer said, had deliberately hung up the supply of munitions. He (Mr. Chamberlain) knew a great deal about munition-making, but he knew nothing about an armament ring. The output of armaments had been expedited by them and every other firm in every possible way. He hoped that they might be allowed to retain a profit commensurate with their services. They were determined, however, not to distribute those profits upon anything but a cautious basis until they knew what that proportion would be.

NATIVE RECRUITING CORPORATION ANNUAL REPORT.

THE report of the board of management of the Native Recruiting Corporation, presented to members at the ordinary general meeting, shows that the number of natives recruited by the Corporation, including voluntary, local and contractors' natives, together with the natives received from the Witwatersrand Native Labour Association, during the twelve months ended 30th June, 1916, was 218,685, from the sources shown in the following table, and the number of natives transferred from one member to another was 683, giving a total of 219,368:—

1. BRITISH.	Recruited.	Voluntary.	Local.	Total
Cape Province	63,550	27,299	10,203	101,052
Natal and Zululand	6,366	4,398	2,660	13,424
Swaziland	5,755	839	225	6,919
Transvaal	9,946	10,243	3,551	23,740
Bechuanaland and Bechuanaland Protectorate	3,739	865	656	5,260
Basutoland and O.F.S.	13,026	1,569	2,611	17,206
Others	43	333	973	1,349
2. PORTUGUESE.				
East Coast natives south of latitude 22°S. (recruited by the W.N.L.A.)	34,890	7,573	7,252	49,715
	137,315	53,139	28,231	218,685
Natives transferred from one member to another				683
Grand total				219,368

NOTE.—Voluntary natives are those who come direct from their homes to the mines. Local natives are those who transfer from one mine to another, or from other employ to that of mines.

Complements:—Underground: 30th June, 1916, 154,515; 30th June, 1915, 155,843. Surface: 30th June, 1916, 41,110; 30th June, 1915, 40,667. Total: 30th June, 1916, 195,625; 30th June, 1915, 196,510. The net wastage (i.e., natives taking their discharge, deserted and died) during the twelve months under review was 291,275. There are no contractors authorised to recruit for members, the organisation of Messrs. Marwick and Morris having been acquired by the Corporation at 1st September, 1915. The number of East Coast natives, including "specials," received from the Witwatersrand Native Labour Association during the twelve months ended 30th June, 1916, for distri-

bution to members of the Corporation was 34,890, showing an increase of 5,005 over the number received during the year ended June 30th, 1915. Liabilities:—Capital: The registered capital of the Corporation consists of 2,500 shares of £1 each, of which 1,948 fully paid shares have been issued to members. Deposits: Payments made by members on the basis of their total native labour complements amounted to £97,842 10s. at 30th June, 1916, being 10s. per unit of complement, leaving 10s. per unit of complement uncalled at that date. Assets:—Debtors, £53,945 1s. 1d.: This consists chiefly of advances made to agents for recruiting purposes, and amounts owing by members for labour supplied and outstanding at 30th June, 1916. Rebates to members: The amount of the rebate received from the Witwatersrand Native Labour Association, Ltd., was £62,858 8s. 6d., and this was distributed to members, on the basis of fees paid by them, in reduction of the cost of labour supplied. The surplus of receipts and expenditure, amounting to £83,174 9s. 9d., has also been distributed, making a total refund to members of £146,332 18s. 3d. during the year. Management and staff: The chairman, eighteen of the head office staff and seven of the branch office staffs are on active service with various units of the Imperial forces, and are acquitting themselves with distinction. The war allowances to these men are made in accordance with the scheme approved by the Chamber of Mines, namely, half pay to married men, quarter pay to single men, and quarter pay plus special allowances to single men who have dependents. The temporary officials appointed to relieve the men who are fighting are satisfactorily carrying on the work of the Corporation, and thanks are due to the acting manager, the secretary and staffs of the head and branch offices and the staff of the Witwatersrand Native Labour Association for the zealous and successful conduct of the Corporation's affairs. The Advisory Committee of Consulting Engineers and the Complements Committee have rendered valuable aid, and the board desires to place on record its appreciation of the support given by these bodies and to tender its thanks to the Native Affairs Department and to the officials of other Government Departments of the Union and British Protectorates for the assistance they have rendered during the year.

We congratulate Professor Yates and his students on their success in the examination for managers' certificates last month, the results of which are just to hand. They secured twelve certificates, thus repeating their achievement of May last, when twelve successes were also scored.

The next ordinary general meeting of the Chemical, Metallurgical and Mining Society of South Africa will be held in the Lecture Theatre, S.A. School of Mines and Technology, Johannesburg this Saturday, the 21st inst., at 7.45 p.m. Papers for reading: (1) "The Hardening and Annealing of Metals," by Prof. Thos. Turner, M.Sc., University of Birmingham (hon. member); (2) "Testing the Strength of Explosives," by Mr. J. A. Campbell. Replies and discussion: (1) "Notes on Rare Minerals in Madagascar," by Mr. T. P. Waites; (2) "Some New Methods of Testing for Molybdenum"; and (3) "Analysis of Niobium-titanium Minerals, with Some New Tests for Niobium, Tantalum and Titanium," by Dr. James Moir. Final discussion: (1) "Concrete Shaft Equipment at the Bantjes Consolidated Mines," by Messrs. W. W. Lawrie and G. Hibbick-Smith; (2) "On Some Diseases of the Respiratory Organs Incidental to Miners, as portrayed by Dr. Agricola, in A.D. 1550," by Dr. J. de Fontenay. Continued discussion: (1) "The Encouragement of First Aid Work on the Mines: Some Suggestions Based on Crown Mines' Experience," by Mr. A. J. Brett; (2) "Valuation of Mines," by Prof. R. A. Lehfeldt; (3) "The Manganese Silver Problem," by Mr. W. Neal.

New Patents.

241. James Perriston and Thomas James Barron.—The extraction of potash or other chemicals from certain trees and the manufacture of such chemicals or products into manures or other commercial commodities.
242. Alfred Leslie Blomfield.—Improvements in apparatus for separating liquids from solids in fluid suspensions.
243. Heine Wolf Adler.—Water jet valve.
244. Harry Benson.—Improvements in miners' and similar boots.
245. William Edward Coleman and Arthur Edward Butterworth.—Tool for testing and adjusting ignition devices of internal combustion engines.
246. Henry William Stevens.—Improvements relating to the stems of the stamps of stamp mills.
247. Ernest Moss.—Improvements in and relating to postal franking machines and the like.
248. Donald McLachlan.—A reversible self-locked detachable bit.
249. Allan Thomas Cocking and Kynoch, Ltd.—Improvements relating to the manufacture of explosives and fertilisers.
250. Sven Johan Nordstrom.—Lubricated hydraulic plug-valve.

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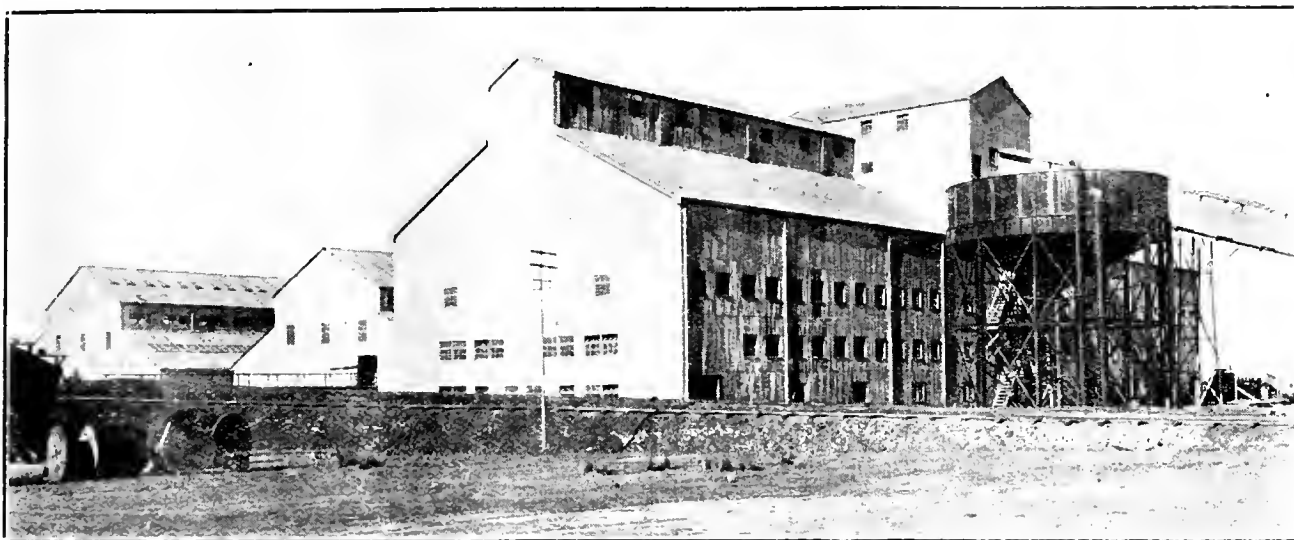
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VIEW OF THE REDUCTION WORKS TO-DAY.

Photo by A. Watson.

CORRESPONDENCE AND DISCUSSION.

Far East Investments.

To the Editor, *South African Mining Journal*.

Sir,—As there is a good deal of speculation taking place at the present moment in Far East Rand stocks, and as the companies in that area are all in the same zone and more or less of the same value if worked on a similar scale, it is not therefore out of place to compare the present price of the shares of the various companies. In calculating the Government Areas one should make allowance for practically 50 per cent. for the Government share, which leaves that company the profits on, say, 1,300 claims. On this basis, taking capital, present price of shares and claim area into account, works out at approximately the following:—

Modderfontein Deep Levels	£9,000 per claim.
New Modderfontein	6,300 per claim.
Van Ryn Deep	5,500 per claim.
Brakpan Mines	3,000 per claim.
Government G.M. Areas	3,000 per claim.
Modderfontein B.	3,000 per claim.
Springs Mines	2,500 per claim.
Geduld Proprietary Mines	900 per claim.

These figures should give those who want to invest some idea as to the possibility of these investments in the Far East Rand. The lower the price per claim the greater the chance of profit, as although there are rich and poor zones in every one of the Far East mines, the possibilities of rich and poor zones are almost equal in every one of them. It must therefore depend upon the management and the extent of efficiency and machinery employed to make the one mine as profitable as the other, or, in other words, the claims which to-day stand at £9,000 worth as much as those standing at £9,000.—Yours, etc.,

E. MILLAR.

Shamva.

The position of the Shamva Mines is that in the June quarter a rather higher grade of ore was treated, a total of 146,032 tons yielding £114,661, as against 148,592 tons and a value of £111,660. The profit, however, was slightly less at £46,540, in consequence of an advance in working expenses from 1047d. per ton to 1119d. per ton, due to conditions brought about by the war. Little development work was accomplished, in fact only 232 feet, in comparison with 473 feet, though the reserves were added to by 59,894 tons (including excess stoping). The total of the reserves, which at December 31 last was 1,750,732 tons of an average value of 5.41 dwts., was at June 30, 1,558,758 tons, averaging 5.56 dwts.

Fixation of Nitrogen.*

In times of peace nitric acid is invaluable for the manufacture of fertilisers, whilst in times of war it is essential for the manufacture of explosives. Nitric acid is available from two main sources—(1) the nitrate of soda deposits of Chili, and (2) the fixation of the atmospheric nitrogen. The importance of nitric acid in the present war will be realised from the following statement made by Mr. F. S. Washburn, President of the American Cyanamid Company: "Germany had available within her borders at the outbreak of the war 660,000 tons of nitrate of soda. She imported from Chili during 1914 up to the outbreak of the war on August 1 in excess of 800,000 tons, and it is estimated that she captured at Antwerp another 200,000 tons. All of this supply was consumed during the early months of the war, during which period Germany expanded on an enormous scale the air nitrogen industry, already well established in that country. To this end she expended substantially £20,000,000, employing an additional 300,000 continuous horse-power. Even the Allies, to whom the road to Chili is completely open, are employing 500,000 continuous horse-power in the fixation of atmospheric nitrogen in the form of explosive materials and are actively engaged in the establishment of nitric acid factories by the way of the cyanamid process throughout their various countries." The commercial fixation of nitrogen has developed along three distinct and independent lines—the absorption of carbides, as exemplified in the cyanamid process; the direct oxidation to oxides of nitrogen with subsequent formation of nitric acid, as represented by the arc processes; and the direct combination with hydrogen to form ammonia, as developed in the Haber process. Recent developments in the nitrogen fixation industry have been on a scale unheard of in the world's history. Installed capacity for nitrogen fixation, expressed in short tons nitrogen per year, in 1913 and at the beginning of 1916, throughout the world are shown below:—

	1913.	1916.
	Short tons nitrogen per year.	
Cyanamid	65,590	209,510
Arc processes	18,650	29,400
Synthetic ammonia processes	3,000	60,000
Totals	92,240	298,910

As most of this increase was made in 1915, it will be seen that in practically one year the industry showed an increase of more than 200 per cent. One million horse-power is now consumed in the three groups of processes enumerated above. The arc process up to the outbreak of war did not find a secure place outside of Norway. Germany has erected only one new small plant (15,000 h.p.). The Haber process still rests in the hands of the original developers in Germany, and no successful attempts have been made to transplant it from its place of origin.

*Abstracted for the most part from recent articles in *Met. and Chem. Engineering*.

A little medal is being sent by the Great Western Railway Company to its servants. On one side it bears the words: "Charm against accidents. Is it safe?" and on the other: "In every action ask yourself, Is it safe? This will disclose unseen dangers, inspire forethought, induce care, and prevent accidents." In a circular which accompanies the medal the recipient is invited to carry it always with his "small change," to show it to his friends, to get into conversation about it, to ridicule it—if he wills—laugh at it, do anything he likes with it, except get rid of it.

THE WEEK IN THE SHAREMARKET.

Quiet and Waiting—Government Areas Firm—Other Favourites Easier.

THE market opened dull on Saturday, but without much change in prices. Gedults, Sub Nigels and Springs were all easier, with the remaining stocks as before. Simmer Deeps still continue in demand and at present prices show a handsome profit to early investors. A new stock has made its appearance in the unlisted lot, viz., Southern Van Ryn, for which a buying price of 5s. 3d. was made. Phoenix have risen from their ashes to the extent of sales at 11d. On Monday morning business was very restricted, only minor transactions being put through at unchanged prices. The Modder trio were passed with only a selling quotation for Deeps. Simmer Deeps are still in fair demand and an improved offer was made for Frank Smith Diamonds. Tuesday showed a decline in Van Ryn Deeps, Springs, Sub Nigels and Brakpans, though 4s. was offered for a 60 days' call on the latter. Government Areas remained firm and unchanged. Some business was done in Modder Deeps, but Modder B. were decidedly weak, the only quotation being a reduced selling one. The small boom in Simmer Deeps and Frank Smiths appears to have spent itself and the lucky purchasers were rather anxious to get quit of their bargains. The opening feature on Wednesday was Government Areas, with sales at 54s. and 54s. 3d., thus topping once more their previous best. The price was maintained on call, when the bulk of the free-dealing stocks were easier, notably Gedults, Modder Deeps, Kleinfonteins, Rand Selections, Springs and Van Ryn Deeps. The only advances were in Brakpans, Mines Selections and Rooibergs. Government Areas improved still further during the afternoon, fetching 54s. 9d. and closed at best. Modder B. were rather better and Modder Deeps somewhat easier. Thursday brought a very dull market. A good deal of business was done in Government Areas at closing rates, but it looks as if buyers were beginning to hold their hands. Fractional improvements were noted in Zaaipplaats, Springs and Sub Nigels, while New Modders and East Rand Mining Estates were both stronger on buying quotations. On the other hand, Van Ryn Deeps, Gedults and City Deeps all fell away. African Farms, with sellers at 8s., have nearly reached the lowest point they touched at the worst period of the strike and war market. In outside stocks very little has been doing. Henderson's lot are shelved; Daggaonteins are very little better, the present price of options being 10s. buyers, new shares about 24s. and old shares in the vicinity of 13s. 9d. South Van Ryns, referred to above, have advanced to 7s. 6d. buyers.

On Thursday afternoon, after the first part of this report had gone to press, Government Areas did fall away to 53s. 9d., but recovered to 54s. 6d. on Friday morning. The improvement, however, was not general. Gedults dropped to 44s. 6d.; the best buying offer for New Modders was £19; Rand Klips were lower at 8s. 6d.; a parcel of Springs Mines changed at 63s. 9d., a loss of 9d. City Deeps made 86s.; New Modders were quoted at £6 17s. 6d. to £6 18s., and Sub Nigels rose to 26s. 6d., the remaining stocks being unchanged.

	Fri., 13th.	Sat., 14th.	Mon., 16th.	Tues., 17th.	Wed., 18th.	Thurs., 19th.
African Farms	8 3	8 0*	8 1*	8 7	8 3+	8 0+
Apex Mines	6 0+	5 10*	5 10*	5 10	5 10*	5 10*
Aurora West	13 9*	14 6+	—	14 1*	14 6+	—
Bantjes Cons.	14 6	14 6	14 4*	14 6	14 6*	14 5
Blaauwshoek Diamonds	—	75 0*	—	—	—	—
Brakpan Mines	36 3*	38 0*	37 0*	36 0	37 0*	—
Breyten Collieries	19 0*	19 0*	19 0	19 0*	19 0*	19 0*
Brick and Pottery	5 0*	5 0*	—	—	5 0*	5 0*
British South Africa	—	12 3+	12 0*	—	—	—
Cinderella Cons.	6 0*	6 0*	6 0*	6 0*	6 0*	—
City and Suburbans	37 0	37 0*	37 0	36 6*	—	36 6*
City Deeps	87 0	87 0	86 0*	86 6	86 0	85 6
Cloverfield Mines	9 6	9 4	9 3*	9 1*	9 2*	9 5

*Buyers. +Sellers. (Odd lots.

	Fri., 13th.	Sat., 14th.	Mon., 16th.	Tues., 17th.	Wed., 18th.	Thurs., 19th.
Clydesdale Collieries	13 6*	13 6+	13 6*	13 9*	13 6*	—
Concrete Construction	2 9+	2 9+	2 9+	2 9+	—	2 9+
Cons. Investments	—	—	—	20 3*	20 0*	—
Cons. Langlaagtes	27 6*	27 0*	27 9	28 0*	27 6*	28 6+
Cons. Main Reefs	19 0*	18 9*	18 9	18 9	18 6*	18 6*
Cons. Mines Selection	22 0*	23 0	23 6*	22 6	22 6*	22 0*
Coronation Collieries	—	—	—	—	—	—
Cons. Mines Selection	22 0*	27 0*	23 3+	22 5	22 6*	22 0*
Coronation Syndicates	2 6	—	—	—	2 0*	—
Crown Mines	57 6*	57 6*	57 6*	57 6*	57 6*	58 6*
East Rand Coals	2 7	2 8	2 8*	2 9	2 8*	2 8
East Rand Deeps	1 1	—	1 2*	1 2*	1 3	1 1*
East Rand Mining Estates	17 6*	17 9*	17 3	17 3+	16 3*	17 0*
East Rand Props.	15 6*	15 0*	15 0*	15 0*	16 0+	—
Eastern Gold Mines	1 7*	1 7*	1 7*	1 7*	1 7*	1 7*
Ferreira Deeps	—	30 0+	30 0+	20 0*	30 0+	—
Frank Smith Diamonds	3 8	3 10	4 2	3 9	3 11	4 0
Geduld Props.	46 9*	46 6	46 3*	46 3	45 9*	45 6
Goldenhuis Deeps	25 0+	20 0*	20 0*	20 0*	20 0*	20 0*
Ginsbergs	7 0+	—	—	—	—	—
Glencoe Collieries	9 6	9 0*	9 0*	9 6*	9 0*	9 0*
Glyn's Lydenburgs	—	—	—	—	16 6+	16 6+
Government Areas	53 0	53 3	53 3	53 3	54 3	54 9
Jupiters	8 3*	8 4	8 5	8 4	8 4*	8 4*
Klerksdorp Props.	2 6*	2 9	2 6*	2 7*	2 6*	2 7*
Knight Centrals	11 0*	11 0*	11 0*	11 0*	11 0*	11 0
Knights Deeps	—	25 0+	20 0*	—	—	—
Lace Props.	5 6*	5 8*	6 0+	6 0	5 10	5 9*
Luipaardsvlei Estates	7 9*	7 9*	7 9*	—	7 6*	—
Lydenburg Farms	7 3*	7 3*	7 4*	7 5	7 6*	7 6
Main Reef West	5 10	5 10	5 11	5 9*	6 0+	5 8*
Meyer and Charlton	105 0*	105 0*	105 0*	—	104 0*	—
Middelvlei Estates	1 3*	1 3*	1 3*	1 3*	—	1 4
Modderfontein B.	137 6*	138 0	139 0+	138 0+	137 0*	—
Modder Deep Levels	148 0*	148 0*	—	147 6	147 0	146 0*
Leeuwpoot Tins	13 3*	13 9*	13 6*	13 6*	13 9	13 6*
Natal Navigation Colls.	—	17 6*	17 6*	18 0*	18 0*	17 6*
New Boksburgs	1 8	1 8+	1 0*	1 9+	1 6*	—
New Eland Diamonds	19 0*	20 0*	19 6*	19 3	19 0	19 0a
New Era Cons.	9 9*	9 9*	10 0+	9 9*	9 6*	9 9+
New Geduld Deeps	6 3	6 1*	6 0*	6 0*	6 2	6 1*
New Goehs	11 0+	11 0+	11 0+	11 0+	—	—
New Heriots	—	51 6*	52 0*	51 6*	—	—
New Kleinfonteins	26 9*	27 0*	27 3	26 9a	26 9*	27 0
New Modderfontein	390 0	—	—	380 0*	380 0	382 6
New Rietfontein	0 9+	0 6*	0 9+	0 6*	—	0 6*
New Unifeds	11 0	11 0*	—	—	10 6*	11 3+
Nigels	—	—	—	—	5 0+	—
Nourse Mines	23 6*	23 9a	23 6*	23 6*	23 6+	23 0*
Pretoria Cement	80 0*	83 6+	82 0	80 0*	83 0*	80 0*
Princess Estates	2 0+	2 0+	—	2 0+	—	2 0+
Rand Collieries	3 3*	3 3	—	3 0+	—	—
Rand Klips	8 4*	8 9	8 7*	8 10	8 8*	8 7*
Rand Nucleus	1 9*	1 9*	1 9*	1 9*	1 8	1 8*
Randfontein Deeps	4 4	4 5	4 3	4 3*	4 3*	4 4*
Randfontein Estates	14 0*	14 3	14 6+	13 9*	13 9	13 9
Roberts Victors	10 9+	—	—	10 0	—	10 0*
Rooiberg Minerals	11 6*	11 6*	12 0	12 0	12 3*	11 0*
Roodepoort United	11 0+	—	—	11 0+	11 0+	11 0+
Ryan Nigels	2 6*	2 3*	—	—	—	—
Shebas	—	2 9+	—	—	2 3+	—
Simmer Deeps	4 9	5 1	5 3	5 1+	4 5	4 4
S.A. Breweries	—	32 0*	—	33 0+	—	—
S.A. Lands	4 9*	4 9	4 10	4 9	4 9*	4 10*
Springs Mines	66 3	65 6	65 6	65 0	64 3	64 6
Sub Nigels	26 9	26 6	26 6	26 6*	26 0	26 0
Swaziland Tins	30 0+	—	—	—	—	—
Transbaal and Delagoa	40 0*	40 0*	40 0*	—	40 0*	—
Rand Selections	72 6	71 6	71 6*	71 6*	71 0	70 6*
Transvaal Lands	—	17 3+	17 6+	17 3+	16 6*	—
Transvaal G.M. Estate	20 0*	20 0*	20 0*	20 0*	20 0*	20 0+
Van Ryn Deeps	72 0a	71 9*	71 0	70 6*	70 6	69 6*
Village Deeps	30 0*	31 0+	30 0+	28 6*	30 9+	29 0*
Village Main Reefs	17 6*	18 6+	18 6+	—	—	—
Vogel Cons. Deeps	—	1 6*	1 6*	1 6*	1 6*	1 6*
Welgedachts	20 6*	—	—	—	—	32 6+
West Rand Cons.	—	—	—	6 0+	—	—
Western Rand Estates	1 6*	1 0*	1 6*	1 6*	1 7*	1 6*
Witbank Collieries	40 6*	—	—	40 0*	40 0*	40 0*
Witwatersrands	—	—	53 0*	54 0*	54 0*	—
Witwatersrand Deeps	23 0*	23 3	23 3	22 6*	—	—
Wolhuters	11 0*	11 0*	11 0*	11 0*	11 0*	11 2
Zaaipplaats Tins	0 6*	0 9	0 6*	6 9	0 9*	7 0*

Buyers. +Sellers. (Odd lots.

THE POSITION OF ZAAIPLAATS TIN.

Net Profit, £3,290—Reduced Working Costs and Output—The Outlook.

THE Zaaiplaats directors' report for the year ended 31st July, 1916, states that during the year the capital of the company was increased by 15,000 new shares of 5s. each. These shares were issued as part of the purchase price of the base metal lease acquired from the Transvaal Land and Exploration Co. The capital of the company, therefore, now stands at £63,750, divided into 255,000 shares of 5s. each, fully paid. On 25th March, 1916, shareholders were notified by circular that the company had purchased from the Transvaal Consolidated Land and Exploration Co. the Government Lease held by that company, adjoining the company's property, in extent 83 morgen 57 square rods, equal to 120 base metal claims. The property, therefore, now consists of the following:—(a) 216 base metal claims situated on the farm Zaaiplaats No. 1328, district Waterberg, held under mining leases from the Government; (b) 18 base metal claims on the same farm; (c) certain surface right grants; (d) certain water rights. The following is a summarised statement of the year's operations:—Mill of 15 stamps ran 308·7 days; ore mined, 36,425 short tons; ore drawn from surface dumps, 4,329 short tons; waste sorted (31·7 per cent.), 11,549 short tons; ore milled, 28,829 short tons; sands residues treated, 16,224 short tons; alluvium treated, 17,481 short tons; concentrates produced, 531 long tons; average value of concentrates produced, 70·2 per cent. metallic tin. The quantity of concentrates produced is 168 long tons less than the quantity produced during the previous year, owing chiefly to the lower grade of the ore mined during the year under review. The working expenditure and revenue account shows a profit for the year of £5,557 8s. 6d.; add sundry revenue, £277 0s. 6d.; total, £5,834 9s.; deduct—allowances to men on active service, £352 5s.; prospecting and exploration, £2,019 0s. 11d.; directors' remuneration, £173 3s.—£2,544 8s. 11d.; leaving a net profit for the year of £3,290 0s. 1d. It will be observed that an amount of £1,000 has been credited to appropriation account. This sum represents the amount withdrawn from reserve fund for the purpose of carrying out certain prospecting and exploration work. It was the intention to restore this sum to reserve fund from the value of ore won from the work mentioned, as explained in the chairman's speech last year, but as this work proved unproductive, it has been necessary to write back this amount. Owing to the reduced profit, no royalty or income tax is payable for the year under review. The average price realised from the sales of the company's output was £168 6s. 6d. per ton of metal, as compared with an average of £165 18s. 3d. for the previous year. An amount of £10,334 15s. 3d. has been

appropriated from revenue to meet expenditure on fixed assets, as follows:—Cash paid to T.C. Lands and Exploration Co., Ltd., as part purchase consideration of lease acquired, £10,000; transfer duty and legal charges incurred, £300 19s. 3d.—£10,300 19s. 3d.; expended on new buildings, £33 16s. No shortage of water has been experienced during the year, and the arrangements made have afforded an ample supply for all requirements, with the exception of the treatment of alluvium, which was stopped during the dry period. During the year Mr. W. J. Gau resigned his seat on the board. In terms of the articles of association, Mr. Mannie Solomon retires, but is eligible, and offers himself, for re-election.

MANAGER'S REPORT.

The report of the manager, Mr. A. Gilbertson, is as follows:—No. 13 Section: The main ore body, though large in size, was low grade, and towards the end of the year a serious pinch occurred. Development is being pushed ahead on a number of small ore bodies which were regarded as offshoots before the decline of the main face. Any one of the bodies may prove to be the true extension of No. 13. Several branch ore bodies of secondary importance were discovered. No. 6 Section: After intersecting a dyke the ore body improved greatly in grade, and for a time gave promise of recovering its former valuable character. Towards the end of the year, however, the form of the body altered to that of a seam of unpayable pipe matter. Camp Workings: Development of the large occurrence of pipe matter in this section was unproductive. T.C.L. Lease: Operations were commenced on the lease on the 27th March. Since then a large tonnage of average grade ore has been taken from the seams previously opened up on this property. No definite results have been obtained from development beneath the existing workings owing to the short time work has been in progress. It was found necessary to construct a tramway from the lease to the mill for the purpose of facilitating transport of the ore. Prospecting of the surface, which will be done in conjunction with alluvial treatment, cannot be undertaken until the summer rains have provided an ample supply of water. General: No development of interest took place in other sections. Shortly after the end of the year work was suspended in unpayable sections. Exploration and Prospecting: Thirteen tons of concentrate were recovered from 17,481 tons of alluvium treated in No. 1 alluvial plant. Owing to drought, the amount of water available for treatment was less than heretofore. A few minor occurrences of ore were discovered by prospecting. Tonnage Statement: Tons mined during the year, 36,425 short tons; apporportioned to T.C.L., 376 short tons; waste sorted (31·7 per cent.), 11,549 short tons; sent to mill, 28,829 short tons; total, 40,754 short tons; less taken from reserve dumps, 4,329 short tons; total, 36,425 tons; sorted direct from reserve dumps, 4,500 short tons. Ore Reserve: Payable ore at grass, 5,902 short tons; payable residues available for treatment, 14,230 short tons; total, 20,132 short tons. Ore Treatment: Days run, 308·7; duty per stamp, 9·6 tons; tonnage treated—Current ore, 28,829 tons; residues, 16,224 tons; alluvium, 17,481 tons; assay value current ore, 1·5 per cent. metallic tin approx.; assay value residues, 0·5 per cent. metallic tin approx.; assay value alluvium, 0·1 per cent. metallic tin approx.; concentrate produced—ex current ore, 477 long tons; residues, 41 long tons; alluvium, 13 long tons; total, 531 long tons. Assay value of concentrate produced, 70·2 metallic tin. The reduced output was due to the low grade of ore treated. Delay in delivery of the Mauss Centrifugal Separator precluded the proposed change in the treatment of slime; concentration was therefore carried on as in former years with similar results. A method of removing sulphide impurities by flotation was devised and has been in successful operation during the greater part of the year. Much less trouble is now caused by the presence of impurities. Machinery, Plant and Build-

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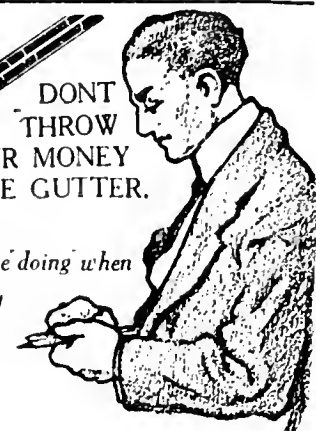
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ings: The few changes made in the equipment during the year were of a minor nature. The Mauss Centrifugal Separator referred to in my 1914-15 report has now arrived on the property and is in the course of erection. Water Supply: The rainfall was 18.18 inches on 35 days. Despite the low rainfall no difficulty has been experienced in supplying all essential requirements. This is due to the conservation of water in dams and to economy in the use of water. Native Labour: Native labour has been plentiful. The average number at work for the year was 601 and the number in service at the year end was 650. The average cost per native shift—after including all charges—was 1s. 11.4d.

WORKING COSTS, REVENUE AND PROFIT.

	Cost per ton treated, 1914-1915	Cost per ton treated, 1915-1916.
Mining	10 5.4	10 1.1
Sorting and Trimming	1 0.2	0 7.5
Milling and Concentrating	6 10.6	5 10.2
Drying and Bagging	0 7.9	0 6.7
Realisation Charges	3 0.7	1 3.6
Mine General Charges	3 1.0	2 1.4
Head and London Office Expenses	1 4.3	1 0.5
	<hr/>	<hr/>
Prospecting—Alluvial Working	26 6.1	21 10.0
	<hr/>	<hr/>
Working Profit	19 6.3	2 5.7
	<hr/>	<hr/>
Working Revenue	17 1.6	24 9.4
	<hr/>	<hr/>

No satisfactory comparison can be made between the 1914-15 and 1915-16 working costs, as during the former year operations were virtually suspended for several months. It will be seen, however, that on a tonnage basis the working cost has been reduced by 5s. 6.6d. per ton. The working revenue per ton of ore treated shows a considerable falling off compared with the figure for the previous year. This is due to the reduced quantity of concentrates produced. Calculated on the basis of the number of tons produced, however, the working revenue shows an improvement for the year of 13s. 11d. per ton as follows:—Revenue per ton of concentrates produced during 1915-16, £105 4s. 9d.; revenue per ton of concentrates produced during 1914-15, £104 10s. 10d.

Disinfecting by Electricity.

We understand that Mr. W. Holman James has secured the agency for the two best and most efficient electrolyzers for the generation of hypo-chloride, which is now being used in the largest centres of the world as a disinfectant. This should appeal particularly to those concerned with compounds and congested districts. This disinfectant is manufactured entirely from products of the country. It is also used with great success for purification of water and for bleaching purposes and laundry work. Its possibilities as an underground disinfectant for use with sprays and generally in the application of water throughout the mine will be obvious to those acquainted with the conditions. The solution can also be used to decompose the cyanide in sand-filling, and is nearly four times more effective than permanganate of potash for this purpose.

ANSWERS TO CORRESPONDENTS.

All inquiries addressed to the Editor must bear the writer's name and full address. We cannot reply to inquiries by letter, but telegrams with replies prepaid will be answered. Correspondents are requested to write their names and pseudonyms distinctly.

"T. G. M."—The only reason we know is the falling off in development. Profits per ton certainly have increased, but the dividend has been reduced to conserve funds in face of the less favourable development.

"K. W. T." (Kingwillamstown).—(1) Yes. (2) Next year, owing to capital expenditure being met out of present profits. (3) Certainly.

"No. 91" (Pilgrims Rest).—(1) Yes. (2) A speculation. (3) The annual report in this issue will enable you to judge the position.

"Copper."—At the last annual meeting Mr. Williams stated that two new furnaces would be erected during 1916, giving to the completed seven-furnace plants a capacity of 1,000 metric tons of high-grade ore daily, and an annual output of over 40,000 metric tons of metal and matte. The other particulars you desire will, doubtless, be forthcoming at the approaching annual meeting.

"Student."—The address of the Secretary, American Institute of Mining Engineers, is 29 West 39th St., New York, N.Y.

"Grasmere."—Unable to trace.

"Another Shareholder."—Better address your complaint, in the first instance, to the secretary of the company. We are assured that it will have his attention.

The Gold Law and the Outside Districts.

A deputation from the Mines and Claimholders' Associations of Pilgrims Rest, Sabie, and Lydenburg, recently had a lengthy interview with the Minister of Mines in Pretoria in regard to a number of questions specially concerning their fields were gone into:—The deputation put forward their point of view that, as a Commission had been appointed to go into the matter of the exploitation of the Far East Rand areas, a parallel Commission should also be appointed to take evidence from the outside fields with the object of designing a Gold Law under which the mineral resources of the Transvaal could be properly explored and exploited. The deputation pointed out that a new and stimulative Gold Law, giving the facilities for prospecting and the freedom from heavy taxation in the initial stages universally adopted in the Gold Laws of other Colonies, was fully as important as any contemplated legislation relating to the Far East Rand. Mr. Malan stated that the Commission now sitting would not only go into the matter of State mining as regards the gold of the Far East Rand, but also into State mining of minerals generally throughout the Transvaal. The Department had experienced difficulties in administering the present law, but he could not at present promise a Commission on the lines indicated by the deputation. Mr. Malan stated that Section 103 could not be taken as protecting the interest of claimholders who were on active service in Europe, but at present their claims were protected by the general policy of the Department not to throw open grounds lapsed during the war. He himself was strongly in favour of their having similar privileges to those mentioned in Section 103 (remission of claim licences, etc.), and would see that legislation was brought in to that effect. The curious anomaly that owners, who were actually employed on their properties, were not allowed to charge wages as working expenditure, was brought to the Minister's notice, and Mr. Malan said he would do his utmost to get this rectified.

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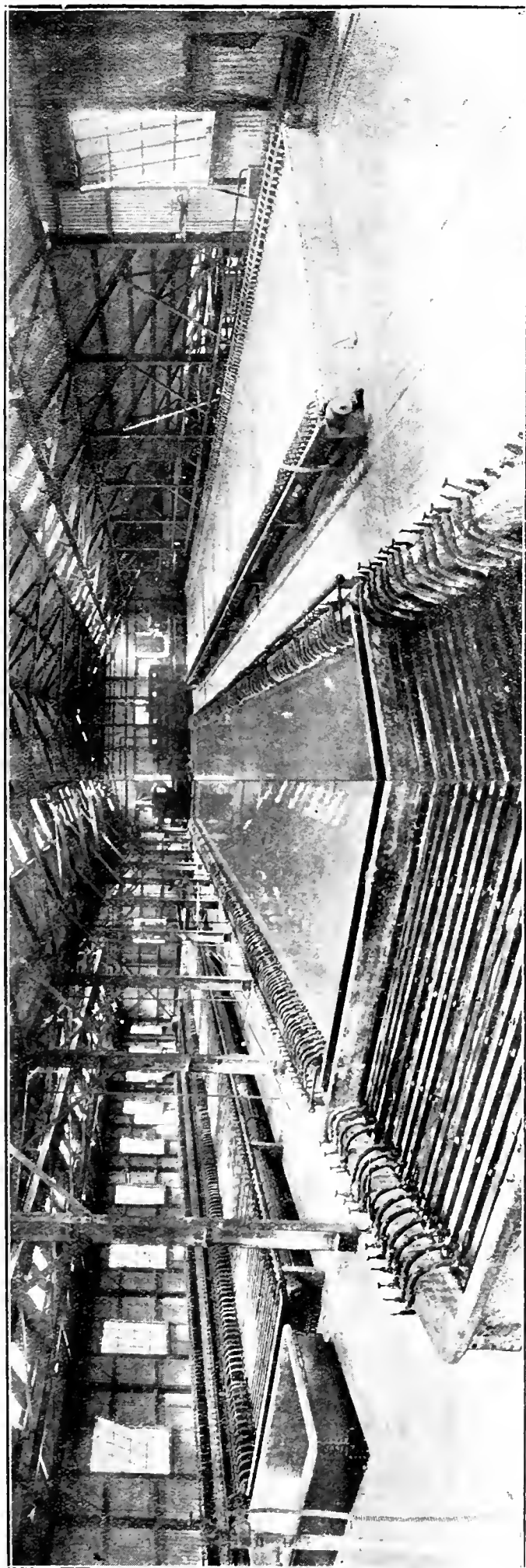


Photo by A. Watson.

TWENTY YEARS AGO.

(Extracts from the *South African Mining Journal*, October 24, 1896.)

The East Rand Proprietary Mines, Ltd., are issuing 100,000 shares at £4 10s. The entire issue is to be offered to shareholders *pro rata*, and has been guaranteed by principals, without any consideration whatsoever, at that price. The approximate date of the meeting is the 14th December.

The Chartered Company's success in placing its new issue of shares, at a time when the Rand market is for all practical purposes "knocked out," suggests some rather interesting points for enquiry. Even though Chartered shares have suffered under the blight that at present lies on all South African ventures, the company can raise as much money as it wants. Only a few months ago its debenture issue, worth a million and a quarter sterling, went off with remarkable ease, and now it finds no difficulty in obtaining guarantees for half a million of money—to say nothing of the remaining quarter of a million shares about to be issued, which undoubtedly will find eager buyers. On the other hand, during the week, East Rand—which cannot be described as a speculative stock, and which are invaluable as indicators of the condition of the market—have reached a lower point than the point they touched during the Reform crisis; and an authority, whose friendship for Mr. Kruger's Government is often carried to an extreme point, declares that "there is a general feeling now amongst large shareholders [in Europe] that many of the mines will shut down, as it is impossible to continue operations when the Government of the country is so severely handicapping the mining industry. There is absolutely no price for shares, and smaller holders in the market are trying to realise at prices far below the lowest quotations." This, one takes it, rather overstates a case that is sufficiently strong to need no overstatement. But how do such things come about? Why is it that, despite all its distresses, the Chartered Company can raise money whilst dealers in Rand shares are showing an extraordinary disposition to scuttle?

The Angelo Dip, Ltd., is the title of a newly floated deep-level company, most favourably situated on the dips of the Driefontein, Comet and Angelo Companies, not more than 3,000 feet south of the Angelo or South Reef outcrop. The property consists of 306 claims, formed by an amalgamation of the blocks hitherto known as the Poultney, the Du Plessis, and the South Deep Level Syndicate. The capital is £500,000, of which 135,000 shares are to be issued for working capital and guaranteed at 30s. per share, making £202,500. The vendors receive 300,000 shares, and 65,000 shares are held in reserve. Two large shafts have already been started, one about 150 feet from the northern boundary in the eastern section of the mine, and the other 150 feet from the northern boundary in the western section of the mine, thus splitting the property into two workable halves. At a rough calculation it has been estimated that the reef should be struck in both shafts at an approximate depth of 1,800 feet, or about the same as on the Robinson Deep. As will be noticed by the situation of the ground, it is quite possible that the rich shoot of the Angelo Reef will be found lying, as this ground does, on the dip of that property, as well as on that of the Comet and Driefontein. The mine is to be equipped in every way as a first-class deep-level property.

At the Bonanza mill an additional 10 head of stamps were dropped on the 15th inst., bringing the milling capacity to 30 head.

The capital of the New Primrose has been increased to £300,000, and shareholders are informed that they have the right of applying for one new share in respect of every 11 shares held by them on 30th September at the price of £5 per share. The whole of the issue of 24,000 shares has been guaranteed at £5 per share.

An important local firm has just taken up the farm Leeuwkloof, next to Scheerpoort, about 18 miles north-west of Pretoria, near the Rustenburg road. As the result of careful prospecting, a good quartz reef has been found extending right through the farm. The reef averages 16 inches in thickness, and is possibly an extension of the Scheerpoort, on which, as is well known, active work has been going on for some time past. A small syndicate has been formed, with a working capital of £20,000, to thoroughly exploit this new find.

The fall in prices which has caused such widespread dismay among all classes of investors during the past few months, made further and more marked progress during the early part of the week. The selling on Paris account seemed to be interminable, and prices melted away with alarming rapidity. East Rand fell to 92s., Bantjes to 48s., French Rand to 37s., and in many classes of stocks prices were quite unobtainable; in fact, during the whole of Tuesday and Wednesday the bottom seemed to have completely fallen out of the market, and grave fears began to be expressed as to the manner in which the coming London settlement would be arranged, especially as it already began to be known that, owing to large withdrawals of gold from the Bank of England, the rate of money was hardening perceptibly. On Thursday morning the whole aspect of affairs was changed, cables bringing the cheering intelligence that the long-continued selling had ceased, and that the market had turned, with prices advancing all along the list. This welcome news was received with some considerable amount of hesitation, the turn having come so suddenly that the permanency of the advance was doubted in the most influential quarters, while the buying here which ensued on receipt of the news was entirely of a professional nature, the public still holding aloof from share dealing, preferring for the time being to gamble in stands and properties at rates which are bound to lead them into more severe and greater disasters than share dealing could ever land them into.

RECENT ADVANCES IN CHEMICAL INDUSTRY.—IV.

[By PROF. J. A. WILKINSON.]*

THE reasons which have led to this expansion are, firstly, the universality and cheapness of the necessary raw materials, and secondly, the amount of electrical energy required, which is much smaller than in any other of the processes mentioned, owing to the fact that the heat given out in the formation of the cyanamide can be utilised to complete the reaction. Again, by the action of water, ammonia is obtained, and this on oxidation yields nitric acid. Mr. W. S. Landis, of the American Cyanamide Company, in a recent article states that "assuming, for the sake of comparison, the end product of the cyanamide process is nitric acid, the power consumption required for fixing a unit of nitrogen by this process is only one-fifth to one-sixth that of the arc process." In this country, with relatively abundant supplies of lime and coal, this is the only well-known process that is feasible, on account of its much smaller requirements of electric power and the production of a substance, which can at once be utilised for its basic industries of mining and agriculture. I shall close this brief review of one of the most important developments of chemical industry with another quotation from Mr. Leslie's paper, which requires no comment. "Recent developments in the nitrogen fixation industry have been on a scale unheard of in the world's history. Installed capacity for nitrogen fixation expressed in short tons nitrogen per year in 1913 and at the beginning of 1916 throughout the world, are shown below:—

	Short tons.	Nitrogen per year.
	1913.	1916.
Cyanamide process	65,590	209,510
Arc processes	18,650	29,100
Synthetic ammonia process ...	8,000	60,000
Total	92,240	298,610

As most of this increase was made in 1915, we note that in practically one year the industry showed an increase of more than 200 per cent. One million horse power is now consumed in the three groups of processes enumerated above." At this stage, it may be noted that the means for the production of low temperatures by liquefaction of low boiling point gases, such as the main constituents of the air, has within the period dealt with made such strides as to render progress possible in other directions, especially those mentioned above, and the rectification of air by fractional distillation has provided an economic method for preparing, on the large scale, nitrogen of a great degree of purity. The advance, which has been made in refrigeration is shown by the fact that ammonia machines give a temperature of -20°C , sulphurous oxide -30°C , carbon dioxide -40°C , and liquid air -190°C . In the synthetic organic dye industry highly concentrated sulphuric acid is a prime necessity, as also in the manufacture of nitro-glycerine and nitro-cellulose of various kinds. Formerly this was manufactured by concentrating the comparatively weak chamber acid, and its production, therefore, involved two operations. A theoretical study of the necessary physical conditions for effecting the union of sulphurous oxide and oxygen led to its realisation on the large scale, and set up a formidable rival to the old chamber process, which, in consequence, has undergone many improvements. The smelter fume problem

Presidential Address read before the C. M. and M. Society.

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in America, of which legislation compelled a solution, stimulated the construction of contact plants, and, in this connection, it is interesting to hear the testimony of a high authority on chemical industry that "for the same weight of platinum the Americans have increased their output threefold." In this country the bulk of the sulphuric acid is manufactured for the explosives industry by this process. For the present, however, there is little doubt that the old chamber process will hold its own, owing to the fact that by far the largest consumption of the acid takes place in the superphosphate industry, and for this purpose chamber acid is used. Intimately connected with this industry is that of the alkalis. The Leblanc process has now been in use for over a century, and its virile competitor, the ammonia soda process, for half that period. Recently the conversion of hydraulic into electric energy has given rise to the electrolytic alkali industry, which is now firmly established, and from which products more varied and valuable are obtained. The electrolysis of common salt solutions yields chlorine, sodium, sodium hydroxide, hypochlorite and chlorate, according to the cell used. Elementary chlorine has been an article of commerce for some years, and is utilised for the manufacture of bromine and bleaching powder, for detinning waste tinplate scrap, which is now a large industry, and for the manufacture of chlorinated organic compounds, e.g., chloroacetic acid in the synthetic indigo process, for making carbon tetrachloride and sulphur chloride and, in general, as an oxidising and bleaching agent. Sodium is used chiefly for the manufacture of cyanide and peroxide, and the uses of caustic soda are well known. By allowing the products of the electrolysis to react upon each other at a low temperature, hypochlorite is formed, and at a higher



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temperature, chlorate. The former compound prepared by this method has been used very largely for many years for water sterilisation and in hospitals, and small plants for obtaining it from sea water have now been installed on the large ocean liners for disinfectant use. Chlorates are now made exclusively by electrolysis. Hydrogen is likewise obtained in large quantities, as a by-product, in these processes, and at first was allowed to escape, but is now utilised as already mentioned. Electrolytic decomposition of fused salt has also been undertaken with success, and, as conducted on the large scale, shows a high energy efficiency. It would be extremely rash to hazard any opinion on the future success of these rival industries, since there are so many conflicting factors, which must be taken into account. Primarily the industries utilising electrical energy are dependent on its low cost, which at the moment can be obtained most efficiently from water power, and this is only possible at certain isolated centres, which are, in most cases, situated at some distance from the most profitable selling markets. Again the question of power in chemical processes, though of extreme importance, is by no means the only factor to be considered, so much so, that it is by no means rare to find that a process which promises well when carried out in the laboratory, is almost impossible to realise commercially. On the other hand the utilisation of cheap electric power has created a revolution in the art of preparing certain metals, namely, sodium, aluminium, magnesium and calcium, as well as in the refining of copper, lead and gold. The electro-thermal furnace preparation of steel is capable of wide expansion, but it is very doubtful if iron will be reduced from the ore by this method, except at the cheapest centres of electric power production, such as are found in Scandinavia. Of very recent date is the introduction of soft electrolytic iron on the market, which, owing to its valuable properties, is used in the manufacture of electro-magnets in motors, thereby increasing their efficiency as it becomes magnetised and demagnetised much more readily than the iron hitherto used for this purpose. Another group of industries directly due to the harnessing of the Niagara falls is connected with the re-discovery of silicon carbide by E. G. Acheson in the last decade of last century and now comprises the manufacture of this substance, known commercially as carborundum, artificial soft graphite, and hard graphite electrodes, for use in electric furnaces and electrolytic cells. Carborundum is prepared by decomposing in the electric furnace a mixture of sand and coke containing a small percentage of sawdust and common salt. Owing to its great hardness, being next to the diamond in this property, it is chiefly used as an abrasive. Electrodes are made similarly by heating amorphous carbon articles moulded to the shape desired. Soft graphite is prepared by the decomposition of carborundum at a very high temperature, when the carbon splits off in this form. The nature of this reaction is interesting, since only a small quantity of carbide is necessary to bring about the transformation of a large quantity of carbonaceous material. A further discovery of Acheson's may also be mentioned, namely, the production of colloidal graphite by a treatment of the soft furnace variety, with a solution of tannin, a method which has largely increased its powers and use as a lubricant, thus assisting towards a solution of the problem of power control. The demand for oxidisers, which contain a large percentage of available oxygen, has led to the industry of the so-called per-salts, and at the same time to the marketing of stabilised hydrogen peroxide of great purity. Persulphates, perchlorates and perborates are now prepared commercially, the latter being marketed for use in laundries under the name of persil or perborin. On the other hand the powerful reducing agent sodium hyposulphite, is now an important commercial article, being marketed as the solid anhydrous sodium salt for use in dyeing processes. The rarer metals have contributed largely to our welfare, more particularly with respect to increasing the efficiency of coal-gas and electric current as illuminants. In the former case the manufacture of the well-known gas mantles is carried out by dipping the cellulose fabric in a solution containing a large percentage of thorium nitrate with small amounts of cerium or other rare earth nitrates.

The consumption of these mantles in Europe and America amounted in 1912 to over 220,000,000. Although introduced only a short time ago the replacement of carbon filaments in electric lamps by the rare metals osmium, tantalum, and latterly tungsten with an economy of 60 per cent. of current are well known; and nitrogen and even argon are replacing the vacuum. An iron-cerium alloy containing 65 per cent. cerium, known as Auermetal, after its discoverer, is the modern substitute of the ancient flintstone. Lastly, a huge industry has been recently created by the use of the oxy-hydrogen flame in fusing alumina both pure and coloured with iron, titanium and chromium oxides for the production of artificial rubies, sapphires, etc., identical in all their properties with the natural gems, and now largely used both for jewellery and scientific instruments. From the above survey of the field of applied inorganic chemistry the intimate connection between progress and electro-chemical energy has been frequently mentioned. In the region of the organic chemical industries this has played a far less conspicuous part in spite of the endeavours made to take advantage of it; on the other hand, there is no field in the whole realm of science, which demonstrates so clearly and conclusively the tremendous potentiality and power of scientific research. The synthetic production of indigo, made economically possible by the development of the contact process for sulphuric acid, is the most brilliant result in this field, but this is by no means the only triumph. The story of the utilisation of coal tar distillation products has been repeated so often, that even the man in the street now attempts to arrogate to himself the knowledge expressed in the term coal tar dyes, an industry born in England and reared to an undreamed of perfection in Germany, so much so that at the outbreak of the present war the textile industries of England worth £200,000,000 per annum found themselves in a critical condition, when imported dye-stuffs valued at £2,000,000 were cut off—a state of affairs which, to some extent, has since been happily remedied. The mother substances, from which these dyes are prepared, are benzene, naphthalene and anthracene, obtained respectively from the light, medium, and heavy oils of tar. A mere list of the colours which have been derived therefrom would cover many pages, but would be out of place here. It will be sufficient to indicate the events of main importance. The synthesis of alizarin in 1868 by Graebe and Liebermann and its appearance on the market a little later resulted in the gradual and finally complete displacement of the natural product, and at the same time, owing chiefly to the large profits secured thereby, stimulated a keen and intense interest in the subject, the consequences of which were soon manifested by further discoveries, such as the eosins, chrysoidin, methylene blue, malachite green, auramine, naphthol black, congo red, rhodamine, etc., etc.

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THE WEEK IN THE MINING MATERIAL AND ENGINEERING TRADES.

Business Extremely Quiet—Mines Still Buying Timber—Contracting Very Keen—Enemy Trading—New Capital Negotiations,

THAT business is exceedingly quiet throughout the mining material trade is the unanimous answer from all enquiries made. At the moment it is difficult to find any redeeming features, as the general idea is that similar conditions are likely to prevail until the end of the year. In the meantime the mines are keeping stocks healthy, but using freely from any surplus lines on hand in excess of some six months' supplies. In this respect it is said that certain stores have accumulated to the extent of from one to two years' supplies on some mines. However, as the trend of prices is to advance, it is an advantage than otherwise. The manager of one firm states that prices will advance even higher, which idea is based on the fact of his people in Britain not being able to obtain the necessary permit from the British Government to export some turned steel shaftings, according to advices to hand by this mail. This is the first time in his experience since the war that such a thing has occurred, hence the idea. What he does think, however, is that although values of material will remain firm long after the war, yet there may be a sharp decline in freights. The reasons mentioned are that the Entente Governments will release as much of the mercantile shipping as possible, then all the shipping now detained in neutral and enemy harbours will be liberated, also much new shipping now in course of construction will come into the freight market. All these factors may create a temporary slump until such time as the munition factories and the labour element connected therewith reconstruct themselves into manufacturing commercial goods suitable for a peaceful world again. These commonsense remarks—platitudes if you will—are mentioned again and again, as there is no gainsaying the fact that they are always uppermost in the minds of those responsible for importing and keeping men's minds who are responsible for importing and keeping control of stocks, as a very little bad judgment in this respect can easily mean jeopardising all the profits made during the war and even more.

TIMBER AND BUILDING MATERIALS.

Thanks to the enterprise of several Johannesburg firms, importations from the Baltic have always been kept moving, and recently shipments have arrived, most of which went direct to the mining yards. Notwithstanding a slackening off in other respects, the mines are always in the market for pitch pine, which is the cleanest and easiest of working woods, and so far nothing like a substitute has been found for the mines. Values keep very level and now 1s. 2d. per foot for deals seems the recognised and accepted price as a matter of course. This high level is double pre-war rates, and with other building materials, such as hardware fittings, having advanced in almost a similar manner, it has checked or stopped the speculating builders, but there is still a lot of genuine work in progress, chiefly in the business parts of the town, with a fair sprinkling of private

residences, round about £1,000, in the suburbs. The stoppage of the speculating building has created an abnormal competition amongst contractors in tendering for new work of any and every description. In going through these contracts one can hardly realise that prices have advanced to the extent they have. Evidently the explanation of the keenness is accounted for by the contractors keeping the pot boiling until the advent of more happy times for all concerned. The employees of the building trades are asking for an increase from 2s. 6d. to 2s. 10d. per hour, which question will be referred to a Board of Conciliation under the Industrial Disputes Prevention Act. Seeing that the Boards appointed in the case of the printers, as well as the iron moulders settled matters so amicably, there is every reason to anticipate, on the authority of a man whose opinion is worth recording, that the builders' operatives also will be fixed up. So far this new machinery of a Board of Conciliation seems a step in the right direction, and anything and everything to make for a good understanding between capital and labour is a relief to all parties concerned, as this is one of the biggest questions of the day and is troubling the minds of the best and earnest men on both sides.

ENEMY TRADING.

There is a special general meeting of the Commercial Exchange on October 27th to receive the Committee's report on Enemy Trading. So far the information obtained is kept a pretty close secret. However, the prevailing idea is that the Government has had the whole subject so well in hand that little sensational matter will be forthcoming. Naturally some smart criticism may be expected, with little result, as it is a very complex question to tackle, and, as before remarked, "a man with some authority" says that the Government has so far done well.

MINING MATERIAL.

There is a glut in town of 4lb. drill hammers, as well as handles. It appears that one firm alone was persuaded to take 200 tons of hammers when the price had phenomenally advanced some twelve months ago. This and other similar cases can easily account for enough hammers being in town to last another twelve months if no more are imported. The same remarks, in a lesser degree, apply to shovels, where another firm specially imported 2,000 dozen, and as other firms did not stop getting their ordinary supplies, the town is much overstocked. Whilst mining materials have not been wanted much, there has been quite a fair demand for small machines and tools for several new fitters' and engineering shops recently opened in Johannesburg and on the Reef. These smaller shops peculiarly lend themselves to the present conditions of the Rand, when so much has to be made because of the difficulties of obtaining goods from overseas. They, with a little capital and a couple of expert workmen who are up in all departments, can make a start with good chances of success, as working leaders are more than ever wanted nowadays.

OUTSIDE CAPITAL.

Upon the highest authority it can be stated that important negotiations are under weigh in obtaining new capital for a Far Eastern Rand proposition. From the quarter it came from it looks likely that the new capital, if arranged, will come from Chicago, independent of present interests on the Rand. If the alleged experiment is successful, others will follow, even a new financial House may ultimately develop, but those are thoughts and anticipations for the distant future. Of course when all these sorts of forecasts, based upon a few substantial hints,

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become accomplished facts, then it is suitable matter for the *Government Gazette* and our occupation is gone.

OILS, COLOURS AND PAINTS.

According to a private trade cable received here on Thursday, linseed oil has advanced 5d. per gallon in London, with still an upward tendency. It will make no difference here at present, as stocks are heavy, also oilmen stocks generally are on the big side. As regards business, this has dropped off considerably of late, as people are awaiting the first rains to give the outside of the buildings a good drenching, cleaning the gutters and so forth, before commencing to paint the roofs and outside generally. The Reef trade also is exceedingly dull, so much so that one representative firm here is sending its travellers for a trip around the coast to hunt up business.

REVISED PRICE LIST.

Approximate war prices, subject to quick change.—Mining and building hardware: Iron, imported, round up to 1 in., 30s.; 2 in. to 6 in., 25s. per 100 lbs. Ditto, square, up to 1 in., 27s. 6d.; 1½ in. to 2½ in., 23s. 6d.; 2½ in. to 5 in., 25s. Flats, 3-16 in., 37s. 6d.; all from ¼ in. up, 30s. Angles, ½ in. to 3-16 in., 40s.; ¼ in., 35s.; 5-16 in. to ¾ in., 30s., excepting 5 x 4 x ¾ in.; mild steel bar, 4½ d. lb.; drill, 7 lb.; steel plates, 10 ft. by 4 ft. by 1-16th in., 35s.; ½ in., by 3-16 in., 32s. 6d.; ¾ in. to 5-16th in., 31s.; ¾ in., up to 30s.; 10 ft. by 5 ft. by 1-16 in., 36s. 6d.; ¾ in. and 3-16 in., 34s.; ¾ in. to 5-16 in., 32s. 6d.; ¾ in., up to 31s. 6d.; intermediate sizes up to 12 ft. by 6 ft. by 1-16 in., 37s.; ¾ in. and 3-16 in., 34s. 6d.; ¾ in. and 5-16 in., 33s.; ¾ in. and up 32s., all at per 100 lb.; hexagon and cuphead bolts, ½ in. diameter to 2½ in., 55s., over 2½ in., 52s. 6d., ¾ in. to 2½ in., 50s., over 47s. 6d., ¾ in., ¾ in., 1 in., up to 2½ in., 45s., over, 42s. 6d.; nuts, ¾ in., 10d. lb., ½ in., 60s., ¾ in., 57s. 6d., 1½ in., 1¾ in., 62s. 6d., 2 in., up, 67s. 6d.; washers, all sizes, 45s.; rivets, 3-16 in., 1s. 1d. lb., ¾ in., 5-16 in., 10½ d., 7-16 in., ¾ in., 7½ d., ½ in., 45s., ¾ in., 42s. 6d., ¾ in. up, 40s. lb.; shoes and dies, 32s. 6d. to 35s. per 100 lb.; rails, £23 per ton; picks, 4 lbs., 27s. per doz.; shovels, 32s. 6d. to 50s. per dozen; drill hammers, 5½ d. lb. to 9d. lb.; hammer handles (best American), 14 in., 3s. 6d., 21 in., 8s., 30 in., 11s., 36 in., 13s., per dozen; metal, anti-friction, 1s. per lb.; galvanised iron, 24 gauge, 6 ft. to 10 ft., 10d., 11 ft. 10½ d., 12 ft. 11d.; 26 gauge, 6 ft. to 10 ft. all lengths, 9d. to 9½ d. per ft. all round; flat galv., 18 to 24 gauge, 35s. 6d.; 26 gauge, 36s. 6d. 100 lbs.; floor brads, 22s. 6d.; ceiling, 33s.; wire nails, 37s. 6d. to 55s. per 100 lbs.; solder, 50 per cent., 1s. 6d. per lb.; locks, rim, 48s.; mortice, 60s. dozen; barbed wire, 23s. 6d. to 25s. 100 lb. coil.

Timber: Deals, Baltic, 9 x 3, short and medium 1s. 1d.; longer lengths, 1s. 2d. to 1s. 3d. (Oregon,

1s. 1½ d.); flooring, 4½ x 7 and 6 x 7, 6½ d. to 6¾ d. per sq. ft.; do., 4½ x 1½, 7d.; and 6 x 1½, 7d.; Oregon edge grain, 4 x 1½, 7d.; ceilings, 6 x ½, 3¾ d. to 3¾ d. per sq. ft.; Oregon, 4 x ½, 4½ d.; pitch pine, 8s. per cub. ft.; Oregon, 6s. per cub. ft.; clear pine, ½ in. x 12 in., 7½ d. per ft.; 1 in. x 12 in., 8½ d.; teak, small planks, 14s. 9d. per cub. ft.; do., large, 15s. 6d.; jarrah, 8s. 6d. per cub. ft.; poplar, 1 in. x 12 in., 9½ d.; scantling, 1s. 1d. to 1s. 2d. per ft., 3 x 9.

Bricks, cement, lime, etc.: Cement, nominal, 34s. 6d. per cask; Pretoria Portland, 9s. 3d. per bag; 8s. 3d., truck loads; lime, white, 7s. 9d.; truck loads, 6s. 9d., slaked; do., 5s.; blue, 3s. 6d.; plaster lime, 4s.; bricks, stock, delivered, 37s. 6d. to 42s. 6d.; wire cuts, 50s. to 70s. pressed, 70s. per 1,000, road transport almost unobtainable; salt and white glazed bricks, £27 10s. per 1,000; tiles, roofing, £17½ square; glazed tiles, 10s. 6d. to 17s. 6d. yard; paving cement tiles, 8s. 6d. yard laid; terra cotta tiles, £15 per 1,000; reinforced concrete columns, 6 ft. plain, 22s. 6d., fluted, 24s.; fireclay bricks, £9½, good average, per 1,000; clay chimney pots, 80s. per doz.; fireclay, 37s. 6d. ton on rail.

Oils, paints, lead, oxides, glass: Linseed, raw, 26s. 6d.; boiled, 26s. 6d. per 5-gall.; white lead, 70s. to 72s. 6d. 100 lbs.; turpentine, 49s. 2/4 galls.; 10/1, 54s.; coal tar, imported, 10s. to 12s. 6d. per 5 galls.; oxide in oil, 35s. to 36s. per 100 lbs.; dry oxide, 21s. to 22s. 6d.; S.A. crude oxide, 12s. 6d.; linseed oil putty, 4s. 6d. per 12½ lbs.; bladders, 36s. casks of 100 lbs.; grease A.F. axle, 23s. 6d. to 25s. per 100 lbs.; tallow, 1s. per lb.; White Rose paraffin, 17s. 3d. 2/5; Laurel do., 17s.; petrol, 27s. 6d. 2/4; motor oil, 6s. to 7s. 9d. per gallon; engine lubricating oils, 22s. to 35s. per case; cylinder, 25s. to 40s.; paints in tins, 10d. to 1s. per lb., according to quantity, and if ordered to be mixed, 20 per cent. on pre-war rates. British plate-glass, ¼ in., 3s. 6d.; do., mirror, 4s. 6d.; window, 16oz., 1s. to 1s. 3d. foot.

Chemicals: Mercury, £20 per 75 lb. bottle; bichromate potash, 2s. 6d. lb.; chlorate, 2s. 6d. lb.; permanganate, 9s. lb.; alum, 5d. lb.; carbolic acid, 7s. 9d. lb.; borax, 90s. 100 lbs.; cyanide soda, 1s. 5d. lb.; hypo, 9d. lb.; acetate lead, 70s. 100 lbs.; litharge (assay), 70s. (commercial), 55s. 100 lbs.; zinc sheets and blocks, 1s. 6d. lb.; plumbago crucibles, 5d. per number.

Electrical Goods: Lamps, high volts., British, Holland & American, 16s. to 21s. wholesale, and 21s. to 27s. dozen, retail; carbon lamps, 7s. 6d. per dozen; pure rubber flex, 5d. to 6d. per yard; 3/20 coils of wire, 24s.; do., 3/22, 21s.; tubing, 12s. to 13s. 100 ft.; keyholders, 4s. each; round blocks, 3½ in., 3s. 6d. doz.; lamp holder cord grips, 13s. 6d. doz.; switches, 5 amp., 13s. to 14s. doz.; British glass shades, 24s. to 36s. doz.; Bohemian shades finished; porcelain shackles, 14s. 6d. doz.; do., bobbins, 9s. to 9s. 6d. per 100; cleats, 18s. per 100; P.O. insulators, 18s.; motors, 3 h.p., about £28 to £35, new.

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Company Meetings.

VICTORIA FALLS AND TRANSVAAL POWER.

The annual general meeting of the Victoria Falls and Transvaal Power Company, Ltd., was held on September 22 at Salisbury House, London Wall, London, E.C., Mr. Arthur E. Hadley (managing director) presiding.

The Chairman said: Ladies and gentlemen, I am sure that you will take the notice convening the meeting as read. Before dealing with the business of the meeting I should like to state that I have been asked to preside over our proceedings to-day owing to the absence of your chairman (the Marquess of Winchester), who is still on active service at the Front. The chairman, whenever he has an opportunity, communicates with me with reference to the company's operations, and is always ready to assist us with his valuable advice. In presenting our report and accounts for the year ended December 31, 1915, I think I ought, first of all, to congratulate the shareholders on the very satisfactory result obtained during the year under review and the improved financial position of the company, as is disclosed by the accounts. (Hear, hear.) These results have been obtained through the company having brought into commission the further plant which was in course of construction during the previous year, and also to the economies effected in the operation and working of the plant by our staff in South Africa. It is also with much pleasure that I am able to report a continuance of this progress during the current year—(hear, hear)—the earnings of the combined undertakings for the eight months ended August 31 showing the substantial increase of over £70,000 over those made during the corresponding eight months last year. In asking you to adopt the report and accounts for the year ended December 31, 1915, I will follow the usual course, and proceed with the consideration of the balance sheet and profit and loss account (which have been in your hands for the past fortnight) preliminary to dealing with the general position of the company. The auditors' certificate is satisfactory and is on the same lines as last year. With regard to the sum of £41,653 18s. 8d., to which they refer, the position regarding this amount remains the same as when I last addressed you, and represents moneys remitted to the Dresdner Bank prior to the war for payment of debenture interest due July 1, 1914, and other sums deposited with that bank on behalf of the debenture trustees and in respect of contractor's retention moneys.

The Balance Sheet.

Turning to the balance sheet, you will notice that the accounts are presented in similar form as previously. The combined share and debenture capital stands at £7,465,620; the first mortgage debenture capital remains at the same figure, viz., £3,000,000. The second mortgage debenture capital, which stands at £1,465,620, shows a decrease on the previous year's figure, a further £78,300 of these debentures having been purchased and cancelled during the year 1915, the total amount redeemed by purchase to that date being £184,380. The creditors and credit balances amount to £588,580 7s. With regard to the amount of £55,713 16s. 6d. owing on contractor's retention account, £7,721 7s. 5d. is placed to a special account at the bank, as you will notice on referring to the cash on the other side of the balance sheet, and the remainder is included in the amount of £885,661 4s. 9d. standing at the company's bankers and on loan, as

is also the amount of £33,798 4s. 5d. owing on contractor's general accounts. With regard to the amount owing to creditors in London, standing at £432,877 12s. 5d., this shows an increase on the amount owing at the end of December, 1914, of £208,853, and is accounted for mainly by the fact that since the outbreak of war the first mortgage debenture interest has, for the most part, remained uncollected, and the uncollected amount, some £287,961, is placed to the credit of a debenture interest suspense account. In the meantime this unclaimed interest remains at the company's bankers, and the corresponding debit is included in the cash on the other side of the balance sheet. The next item we come to is the profit and loss account, which shows a credit balance of £339,068 4s. I will deal with this balance later, when considering the details of the profit and loss account. Turning to the other side of the balance sheet, the item of leases and concessions and purchase of undertakings stands at £1,526,303, as compared with £1,536,638, a decrease on last year's figure of £10,335, accounted for by a charge for depreciation and by certain items which have been sold or transferred to other accounts. The next item is the expenditure on and in connection with power stations, building, equipment, and land, which stands at £2,130,015 10s. 4d., a decrease on last year's figure of £8,815, accounted for by sales, amounts transferred to other accounts, and depreciation written off, less further expenditure of £73,399, in connection with extensions made to the company's stations during the year. The company's investments in the Rand Mines Power Supply Company, Ltd., figures in the balance sheet at £3,415,894 10s. 7d., as compared with £3,492,494 0s. 6d., the amount at which this investment was brought into the balance sheet on December 31, 1914, the decrease of £76,600 being the amount written off, equivalent to the depreciation on that company's machinery and other property, less further advances made to that company during the year. As you know, your company holds all the shares of the Rand Mines Power Supply Company, Ltd., and is also a large creditor for loan, in respect of which we hold a first mortgage bond over the whole of that company's undertaking, fully securing the advances. The next four items do not call for any comment, as they are self-explanatory. The debtors and debit balances, amounting to £66,516 4s. 9d., are all good, and have long since been received.

The Cash Position.

The cash at bankers and on loan amounts to £979,040 4s. 5d., and includes the unpaid debenture interest to which I have already referred, and also the half-year's interest on the second mortgage debentures due on December 31, 1915, and not paid until January, 1916. In addition to the cash and loans, the company held at the date of the balance sheet £100,000 of 4½ per cent. War Loan, which figures in the balance sheet at £96,000. The item in previous balance sheets representing preliminary expenses has been written off. Dealing now with the profit and loss account, the interest charge on debentures has decreased from £234,842 in the year 1914 to £232,556 in respect of the year under review, the decrease, of course, being accounted for by the amount of debentures purchased for redemption, and this charge for interest will decrease each year proportionate to the amount of debentures redeemed. You will notice that we have applied the sum of £274,024 towards depreciation and certain writings off, including provision for income tax and excess profits duty, carrying forward to the credit of profit and loss

account in the balance sheet the sum of £223,080. The year's operations have resulted in an increased profit over the year 1914 of £61,832. In 1913 we carried to the balance sheet a sum of £123,411; in respect of the year 1914 the amount was £161,248, and in respect of the year under review we have been able to carry to the balance sheet the substantial sum of £223,080, increasing that account to £339,068. Out of this balance the directors have paid two dividends on the preference shares at the rate of 6 per cent. per annum, each dividend being for ten months, which brings the dividends on the preference shares up to December 31, 1915, the date of the accounts. These dividends were paid on January 6 and June 20, 1916, respectively, which, after adjustment of income tax, accounted for £177,499 18s. 5d., leaving a sum of £161,568 5s. 7d. to be carried forward. I am sure you will agree with me that this increase in the profits during the year under review, which has enabled us to pay the cumulative dividend on the preference shares and to clear off all arrears of dividend up to the date of the balance sheet, is very satisfactory, showing, as it does, a continuance of the prosperity of our undertaking.

Board's Dividend Policy.

The directors have very carefully considered the disposal of the sum of £55,000 by which the carry-forward is increased. The accounts show that the company has entered the stage when the earnings are more than sufficient to meet the 6 per cent. on the preference shares. The amount, admittedly, if expressed at a percentage of the share capital, is small, and does not represent 2 per cent. on the issued capital. Further, the times we are passing through and the uncertainty of all financial conditions, including that as to future taxation, make it, in the opinion of the board, essential to conserve as far as possible the resources of the company. Again, the board has to watch demands for power, and it is obvious that the management of this great undertaking must be conducted on lines which are reasonably conservative. Therefore, in respect of the past year, the board decided that it was in the best interests of the company to add this amount to the carry-forward. In view of the continued increase in the earnings, the board is not unmindful of the desirability of adopting a policy of paying the dividend on the preference shares at the end of each six months as and when such dividend becomes due. As you are aware, this dividend, although not technically in arrear, having been paid up to December 31, 1915, being the date of the accounts we are now considering, is nevertheless in arrear from the point of view of some of the shareholders, who have been asking when the next payment will be made. In answer to this very reasonable inquiry, I may say that the directors have in contemplation the payment, at the beginning of next year, of a full twelve months dividend on the preference shares at the rate of 6 per cent. out of the profits earned during the year 1916, which would thus bring the dividend on the preference shares right up to date. (Hear, hear.) Thereafter it is confidently anticipated that the preference dividend at the rate of 6 per cent. will be paid regularly, in half-yearly instalments, immediately after the due date.

The Company's Prospects.

The prospects of the company in the near future, judged by the progress made up to the present time, are very encouraging, and, as I have already told you, there is an increase this year of £70,000 up to the

end of August compared with the similar period last year, while the earnings for the year 1915 exceeded the requirements of the cumulative preference dividend and enable the payment of these dividends to be brought up to the date of the balance sheet. In endeavouring to look into the future, it must be remembered that as the profits increase the amount payable as excess profits duty, as long as that tax remains in force, increases also. So far as is known, there is no reason to expect that the earnings should fall during the remainder of the year, and if this proves to be the case, and taxation is not further increased, the results of the present year should enable a start to be made in the payments of dividends on the ordinary shares, and in the establishment of a reserve fund, which is so desirable in an undertaking where the supply has to be given within a reasonable time of demand. (Applause.) As I said last year, the heavy capital expenditure of the company has now practically terminated; but, as from the end of this year, provision will in future have to be made for the redemption of the first debentures by annual instalments of £165,000, which includes the premium; but as this sum will be met out of the annual charge for depreciation, and inasmuch as a similar sum, more or less, has been set aside out of profits in previous years which has been utilised in providing the necessary funds for the extension of the company's plant now completed, this charge against profits will not be felt to any greater extent than formerly, and the only extra charge we have, therefore, to consider, at present at any rate, is that of the increased income tax and excess profits duty, which latter charge will doubtless cease with the termination of the war. As you will have noticed from our report, the extensions to the Brakpan power station have been completed, and the whole of the plant ordered for all the power stations of the combined undertakings is now installed and in working order, and this plant, which has a capacity of 274,875 h.p. power, should enable us to meet all normal increases in business without encroaching on the specified reserve plant. Before concluding my remarks I and my colleagues wish to register our appreciation of the untiring loyalty of the staff of the company, both in London and South Africa. As you know, your chairman is still serving with His Majesty's Forces, as also is Major Wills, another of the directors. As regards members of the staff serving with the Colours, you will be interested to hear that in South Africa, out of a total number of 670 employees, there are serving their country 210, or 31 per cent.—(applause)—either with the Colours or on work connected with the war, the classification being as follows: Employed on munitions work, 6; joined the Colours in England, 16; gone to Europe for Overseas contingents, 35; and on service in German East Africa, 153. Of the 153 last mentioned, 96 previously served in the German South-West African operations. As regards our London staff, nine are serving with the Colours and three are employed on munitions work. I now move the resolution: "That the directors' report and statement of accounts as at December 31, 1915, submitted to this meeting, be, and the same are hereby, approved and adopted." I will ask Lord Brabourne if he will kindly second the resolution.

Lord Brabourne seconded the resolution.

Questions and Answers.

Major Campbell asked the chairman to explain how it was that the excess profits tax was charged to this year's account, inasmuch as the average of 6 per cent. had not been paid on all classes of securities, nothing having been paid on the ordinary shares.

Mr. Parkes said he would like to know how much of the amount of £274,000 had been written off for depreciation.

Mr. Marcus asked whether the board had in contemplation the idea of getting some redress in regard to the matter of excess profits taxation. His opinion was that the profits should, or could, be assessed from the time the company was in full working order. What had been done in the past seemed to him to be quite unfair to the company. Other companies were taking steps to obtain redress.

The Chairman, in reply, said that the assessment of excess profits were calculated according to the provisions of the Act, which were, of course, very special. They were not calculated on dividends actually paid. It had to be borne in mind that although no dividend had been paid on the ordinary shares, the company had been earning profits which had been devoted to bringing the payment of the cumulative preference dividend up to date. Then there were a great many other things which entered into the calculation which did not fall into line with an ordinary company's balance sheet. For instance, the question of debenture capital and debenture interest were specially treated, and debenture interest was allowed as a charge. The calculations were made in accordance with the Act, and one was liable to forget that the profits made had been devoted to bringing up to date the payment of the preference dividend. The amount for depreciation included in the figure of £274,000 was approximately £215,000. He was very pleased to inform Mr. Marcus that very careful steps were being taken to safeguard the company's interests in respect to the excess profits tax, and he was in hopes that the company would be able to secure the best possible treatment in regard thereto. When the Act was first thought of it was expected that the excess profits duty would not be levied on companies which could in no possible way obtain any benefit from the war. The matter in regard to this company would be fully investigated; but, so far, no definite assessment had been made.

The resolution was then carried unanimously.

Directors Re-elected.

The Chairman then moved the re-election of Sir Henry Birchenough, K.C.M.G., and Sir Charles Metcalfe, Bart., as directors of the company.

Mr. C. F. Rowell seconded the motion, which was unanimously agreed to.

On the motion of Mr. C. J. Whorrey, seconded by Mr. Whitwham, the auditors (Messrs. Cooper Brothers & Co.) were unanimously reappointed.

Mr. Jennings proposed a hearty vote of thanks to the chairman and directors for the able way in which they had managed the business during the past twelve months.

Mr. Atkinson seconded the motion. In doing so he complimented the chairman on his successful management during the past year. He added that he had never listened to a more clear and concise exposition of somewhat complicated figures than that which they had listened to that morning.

The vote was unanimously accorded.

The Chairman, in acknowledging the compliment, said he had seen the working of the company all through, and knew the extraordinary hard work which had been thrown on to the staff in Africa, especially bearing in mind the number of men who had volunteered their services in the present war. He would be pleased to transmit the resolution to the chairman.

The proceedings then terminated.

NATAL NAVIGATION COLLIERIES.

The annual meeting of the Natal Navigation Collieries, Ltd., was held at the company's offices in Timber Street, Maritzburg, on October 12. Mr. J. T. Williams presided in the absence of the Chairman

(Mr. Dundas Simpson), and others present were Messrs. L. Line, W. J. Shaw, W. H. Buchanan, Col. Weighton, W. J. O'Brien, J. T. Williams, A. Oliff, F. Terry, V. Salmund, J. B. Morris, and Mrs. Theodore Woods.

The business on the agenda paper was as follows: To receive the directors' report and balance sheet, to appoint directors in the place of those retiring, to elect auditors, and general.

Financial.

The report of the directors was taken as read, after which the Chairman delivered the following address:—Gentlemen.—You will be pleased to find that financially last year has been the most successful in the history of the company. The profit was £79,955 6s. 9d. on an output of 352,432 tons, as compared with a profit of £47,588 13s. 7d. on 282,283 tons last year. Years ago we made substantially higher profits per ton, but owing to the smaller outputs then prevailing the gross profits did not reach last year's figures. We have disposed of these profits as follows: Dividends, amounting to 7½ per cent. for the year, £31,250; mining profits and income tax (including £1,120 19s. 11d. due for the preceding year), £7,460 13s. 11d.; depreciation of machinery, plant and buildings, £15,527 17s. 5d.; added to credit of profit and loss account, £25,716 15s. 6d.; total, £79,955 6s. 9d. The increase in the amount carried forward to credit of profit and loss account has not been available for cash distribution. It was required for various expenditures on capital account, which have, of course, increased to that extent the value of your assets. The increased profits, however, enabled the company to pay in the second half of the year a dividend of £20,850, as against £10,400 in the first half of the year. The increased profit was mostly due to the larger output and to a smaller extent to the higher price obtained for coal during the second half of the financial year. The output increased by 69,049 tons, and the increased prices for coal operative during the second half of the financial year will continue also to the end of December next.

Capital Expenditure.

The expenditure on capital account has again been large, the total being £34,037 13s. 1d., an increase of £3,862 17s. 2d. on last year. This expenditure has been absolutely necessary, partly to enable the company's operations to be carried out to the best advantage, and partly to provide for an expansion of output and staff. The present collieries are getting older, and renovation work in many directions has, therefore, had to be considered during the past two years. Some of the boilers and other machinery have given out, and have had to be replaced and added to. The works underground are always extending, calling for more plant and for more powerful machinery. Retimbering has also been necessary in many directions. The benefit of the expenditure will not, however, terminate with the life of the present collieries, as many of the items can be utilised at new collieries.

New Properties.

A considerable amount has been spent on new properties, which, in due time, will prove remunerative investments. Fuller details of the capital expenditure are given in the directors' report. In regard to cash liabilities and cash assets, there has been an improvement in the position, the balance of cash assets over liabilities being £114,970 16s. 4d., as against £109,542 13s. 4d. last year, and this after increasing the value of our stores from £6,792 11s. 8d. at the end of June last year to £21,940 16s. 7d. at the end of the present financial year. The quantity of stores on hand has been largely augmented to provide against in-

creased prices, and to take advantage of opportunities that offered of getting machinery, spares and other requisites on advantageous terms. It will be noticed that the number of shares in issue has been increased from 413,000 to 417,000. This is due to the shares that were issued by the directors in part payment for two of the new properties. We have again followed our usual practice of writing off substantial amounts of depreciation, the amount debited in the year under review being £15,527 17s. 5d., which brings the total written off during the past nine years to £117,479 5s. We continued drilling new properties throughout the year, but drilling has since been discontinued. An amount of £4,329 17s. 2d. has been written off against the profits for the year, and we think there will be very little expenditure under this head during the current financial year. The prospecting and drilling have ultimately disclosed and proved that we now possess, in addition to our existing collieries, three separate independent coal areas of great value. One of these adjoins our present working field; another is about four or five miles from Glencoe Junction and slightly nearer to Durban than our present collieries, and the third is near Paulpietersburg. We are satisfied that each of these properties contains coal of Natal standard quality. It will now be more than ever necessary to conserve and to increase the cash reserve in order that the new properties may, as far as practicable, be opened out and equipped from the company's own cash resources. I must, however, mention at this point that we have to face during the current financial year an expenditure of some thousands of pounds on relaying a portion of the private four-mile joint siding between our collieries and the main line of the South African Railways. Owing to heavier traffic and the introduction of 50-ton carrying capacity trucks, the present 45lb. per yard rails must be replaced by much heavier metal. During the six months ended December last the demand for coal was good, and outputs improved, showing an average of 27,571 tons per month. Early in the new year the demand rapidly increased, partly because of the closing of the Panama Canal, which led to a large number of steamers bound East being diverted to the Cape route.

Requirements of Ships.

The increased demand was also due to the requirements of ships engaged in the German East campaign, increasing number of His Majesty's transport steamers from Australia and New Zealand to Europe, and largely by the diversion of steamers from the Suez Canal to the Cape route, on account of dangers from enemy submarines in the Mediterranean Sea. For these reasons the company's sales in 1916 were enormously increased, and the management have done all possible to increase the output, with the result that the output from the company's mines during the six months ended 30th June last reached an average of 31,167 tons a month. From September of last year to the end of June the supply of railway trucks was better than for some years previously for the same number of consecutive months. The mine bin, owing to truck shortage, contained over 1,000 tons on 55 days of the year, which was always urgently wanted at the Port. The company have been able to buy from other collieries large quantities of coal to supplement their own output to meet the unexpected and abnormal demand for bunker coal which arose from the above-mentioned causes. The monthly outputs since the close of the financial year have been: July, 26,394 tons; August, 32,083 tons; September, 31,338 tons. In July the output was reduced for want of a full supply of railway trucks, the short supply being mainly due to shortage of locomotives to deal with the coal industry. July is the month of passenger excursion trains and the height of the Durban seaside

season. The loss of coal output for Natal last July through truck shortage was at least 30,000 long tons, with very little, if any, compensation in reduction of costs. Obviously, intermittent outputs are very costly to the collieries, as the organisation of labour has to be based on anticipated normal daily supplies of railway trucks. With the addition of 6s. per ton of 2,000 lbs. railage on bunker coal, this traffic is probably one of the most profitable to the Railway Administration, and ought to be helpful in securing a fuller regular supply of trucks. I give below the usual comparison of the general trade of Natal in recent years, viz.:—

	Total sales of the Province.	Sold for bunkering	Sold for export by sea.
1911	2,394,238	1,266,875	356,550
1912	2,472,111	1,054,812	514,145
1913	2,608,408	1,080,564	643,898
1914	2,314,568	1,056,378	371,444
1915	2,071,381	802,501	334,430
(whole year.)			
1915	1,324,351	508,800	214,409
(for 8 months.)			
1916	1,610,399	877,860	116,977
(for 8 months.)			

If the sales for the remaining four months of this year continue at the same rate as for the first eight months, the total for the year both of sales generally and sales for bunkers will be a record for Natal. For general shipping the Durban trade for the first nine months of the last three years has been: Tons (2,000 lbs.) landed at the Port: January-September, 1914, 575,025; January-September 1915, 519,714; January-September, 1916, 541,073. Tons (2,000 lbs.) cargo shipped, excluding coal: January-September, 1914, 225,562; January-September, 1915, 274,623; January-September, 1916, 377,167. Steamers calling for coal only: January-September, 1914, 367; January-September, 1915, 220; January-September, 1916, 591.

The Cost of Wages.

In common with other consumers we find the cost of material and stores is now considerably greater than before the war, and the cost of wages has increased especially since the end of the financial year. Owing to the increased cost of living, it has been found necessary to make monthly war bonus distributions to employees to enable them to meet the increased cost of necessities. Notwithstanding the enormous prices paid for coal in other parts of the world, the prices charged this year by the collieries may be regarded as normal, and no extra charge has been made against shipowners for the additional quantities taken over and above anything anticipated when the contracts were entered into. Many of the contracts were signed towards the end of 1915, before there was any indication that extra demands would be caused by the exceptional conditions that have since been in operation. The Government Railway Administration, however, increased the railage on coal bunkered at South African ports from June 5th last by 6s. per 2,000 lbs. This, it is said, will continue in force until shipping freights again become normal. So far as the collieries are concerned, the shipowners have scored heavily by getting their coal throughout the year at practically normal prices.

An Outstanding Year.

Shareholders will realise that 1916 will be an outstanding year in the company's history. It has thrown extra work and responsibility on all concerned in the working and administration of business. The quantity of coal required at the Port of Durban at any one time to fulfil contracts

and the claims of steamers engaged directly by the Empire on war account for prior and prompt supply have sometimes been in conflict with the demands of shipowners less directly concerned in the war. All this has caused an extra amount of work and care in adjusting the position with the least friction and disadvantage to all concerned. I wish to place on record our appreciation of the excellent services rendered to the company during the year of your untiring London agents, Messrs. Mitchell, Cotts & Co., and by their local firm, Messrs. Wm. Cotts & Co., who have so much to do in promoting satisfactory treatment of the large number of steamers coaling with us at the port. Mr. Dundas Simpson, the chairman of the company, left for England last July after a stay with us of two years. The board wish to place on record their appreciation of the services he rendered during his visit. Mr. Simpson has asked me to make the following statement on his behalf at this meeting: "On leaving South Africa in July last, I was pleased that the position at the mine and the prospects of trade were such as to insure for the company satisfactory financial working. At that date the board's drilling programme was nearly completed, with results which places the future of the company on a basis of continued assured success for many years to come. The heavy capital expenditure which had to be incurred to put machinery, plant and buildings on a proper footing for the efficient working of your existing pits is now practically completed, and I trust that with one or two exceptions no large additional capital expenditure will be required for some time to come at the existing pits. It has given me great pleasure to do all I could to assist the company and the board in South Africa during the last two years. In view of the larger responsibilities in regard to new properties which have been taken up by the board, you will realise that during the next few years a great deal of new and extra work will be thrown on the directorate and management. The great European War, however, is affecting, in one way or another, the whole industry of the world, and until it is over, and until the economic and other consequences of it can be more fully realised, you will understand that no definite programme can be arrived at as to the order and time for opening out and developing the new properties. I wish to express my appreciation of the co-operation of the board and the assistance I have received from all connected with the company when working with them during the past two years, and I hope I may continue to be able to serve the company, whether I be in London or again in South Africa." We have also to express our thanks to our mine manager, Mr. R. Campbell, who has had considerable extra work thrown on his shoulders during the past year, not only on account of the increased output, but also on account of the extensive new work that had to be carried out. We wish to express thanks also to the staff at the mine and at the head office. (Applause.)

Adoption of the Report.

The Chairman then moved the adoption of the report, which was seconded by Mr. L. Line, and agreed to unanimously.

The retiring directors, Messrs. J. T. Williams and Dundas Simpson, were re-elected.

The retiring auditors were also re-elected.

Thereafter Mr. W. J. O'Brien addressed the meeting. He said that they had had an opportunity of perusing the report of the directors and of examining the balance sheet for the year ended 30th June last, and had just listened to the Chairman's full and comprehensive review of the work of the company, its position at the present time, and its future prospects. He considered that the shareholders had ample reason to be thoroughly satisfied with the

management and working of their fine property. The board of directors of the company had had great difficulties to contend with, for those who knew anything of the coal trade in Natal would fully recognise how it bristled with difficulties; even in this company, with a product second to none in South Africa, the greatest care and scrutiny had had to be exercised. The results were shown in the wonderful position of the Navigation Company, as laid before them to-day. During the past two years further properties had been acquired, and the coal-bearing area now owned by the company would give an output equal to that at present being made for upwards of 100 years to come. The directors of the company had adopted and consistently maintained a conservative policy, a policy which had resulted in building up large reserves, sufficient to equip the additional

properties, without the necessity of borrowing or approaching outside sources. To this end dividends had been declared and paid on a moderate scale, a course which had proved eminently satisfactory in the interests of the company, and had shown a true spirit of self-sacrifice on the part of the board in two ways—for the directors were large shareholders, and would benefit materially by larger dividends, whilst their remuneration was fixed by the amount of dividends declared. In view of the careful manner in which the affairs of the company had been governed, he held it to be the duty of shareholders to recognise good work well done, and he therefore had much pleasure in moving a resolution, which he felt sure would receive unanimous acceptance, that a bonus of £1,500 be voted as additional remuneration to the directors of the company.

Colonel Weighton said that, seeing that such a small amount had been recommended for the directors, who had done so remarkably well, he did not think there would be any objections.

Mr. O'Brien's proposal was agreed to. Mr. Williams returned thanks for the manner in which the reports had been received, and also for the remuneration offered. He said that if the directors had been paid in accordance with the articles of association, they would have been entitled to about £3,000. At the same time, large capital expenditure had taken place, and this had been taken into full account. However, he was very pleased at the results attained, and he hoped the company would have a very prosperous future. (Applause.)

This concluded the business of the meeting.

Randfontein Extensions.

The following is the copy of a printed postcard, dated September 14, and signed by the acting secretary, to shareholders of the Randfontein Extensions, Ltd.: "In response to inquiries, I am instructed to inform you that, with reference to the recently acquired claims on the Far Eastern Rand, Johannesburg financiers approached this company with a scheme to amalgamate the claims with an adjoining property; the terms suggested, however, were not such that the board could accept. A preliminary proposal has recently been put forward by an American syndicate to find the capital to develop and equip the claims with the necessary machinery, and the company's agent has now proceeded to New York City to negotiate the business. The new claims have been favourably reported on by two well-known Johannesburg mining engineers, and the latest developments upon the Sub Nigel mine, situated upon the same line of reef to the south, and the boreholes recently put down, lead the board to anticipate that these claims will prove extremely valuable."

The Trade and Industry Committee.

The following are extracts from the quarterly report on the work of the Trade and Industry Committee:—Pursuant to its policy of endeavouring to stimulate and assist British commercial and industrial interests with special regard to their Imperial aspect as elements and factors of Imperial Union, the Committee has during the past quarter dealt with a very wide variety of matters relating to trade and has particularly turned its attention to the encouragement of industry and the production of the raw materials of industry within the Empire. Under present conditions, when industries are largely restricted to the production of munitions of war, it has not been possible to deal with many very important matters, but when peace is restored the information now being collected and the associations being formed should enable the committee to enlarge considerably its sphere of usefulness. The committee has received many inquiries from overseas regarding goods that, prior to the war, were supplied by Germany; but, although there are a large number of cases of German goods having been replaced through the instrumentality of the committee, manufacturers are not at present encouraged to produce goods owing to the absence of facilities for their export after they are manufactured. At the last meeting of the Trade and Industry Committee the Chairman (Mr. Ben. H. Morgan) and Mr. Lockhart were, therefore, requested to place before Sir Hubert Llewellyn Smith of the Board of Trade (in continuation of a correspondence with his Department) the views of the committee in regard to the Government taking some special steps to facilitate export trade. The Empire-wide organisation of the Institute has enabled the committee to secure important reports on overseas markets. The establishment of new industries in various parts of the Empire is a matter to which the committee gives special attention, and its assistance is constantly asked for. After giving a few examples of the inquiries addressed to the committee, both in regard to new industries and general trade matters from all parts of the British Empire, the report concludes: "Much of the information received by the committee should be invaluable to British manufacturers and traders, and it is desirable that its existence at the Institute should be made as widely known as possible in order that it may be consulted by British firms. It has not been considered expedient to publish the information in full, as it, no doubt, would get into the hands of enemy firms and competitive neutrals."

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The British Electrical Industry.

"Electric" writes to the papers as follows:—With reference to the proceedings of the Chambers of Commerce Congress now in session in Capetown, a report of which appears in your issue of even date, I should like, Mr. Editor, with your permission, to ask Mr. Duncan Baxter on whose authority does he make the statement that the "electrical industry in Great Britain is not developed to the same extent as it is in America"? Statements such as this will naturally mislead the buying public and perhaps some of the lay minds sitting on our public bodies and voting for expenditure of public moneys. I might point out to Mr. Baxter that if he is referring to the cost of electrical machinery from the Old Country since the outbreak of war, surely he does not expect British manufacturers to compete with the Americans under the adverse conditions obtaining in the Old Country to-day. I say without fear of contradiction that the British electrical industry is just as highly developed as it is in America, and in some instances British engineering firms are ahead. Take the case of steam turbo-generators, etc. When the New York Edison Company wanted a steam turbo-generator of 30,000 kilowatts capacity, the largest in the world, why, if the electrical industry in America is so much ahead of Britain, did this company give the order to a British firm? No, sir, it is the old, old story. "Britishers seem to have developed a habit of belittling the energies and progress of some of the most important industries in the Old Country," and public men especially seem to possess more faith in the foreign-made article than in the British article. It is an old slogan, unfortunately, that Britishers, as a rule, buy with no other consideration than that of their own pockets; and if the British Empire is to go ahead, public opinion in this respect, especially in Capetown, must be changed. I was extremely pleased to read that the resolution moved by Mr. Chappell on behalf of the Johannesburg Chamber of Commerce was agreed to, with the exception of the local members, which of course is not to be wondered at.

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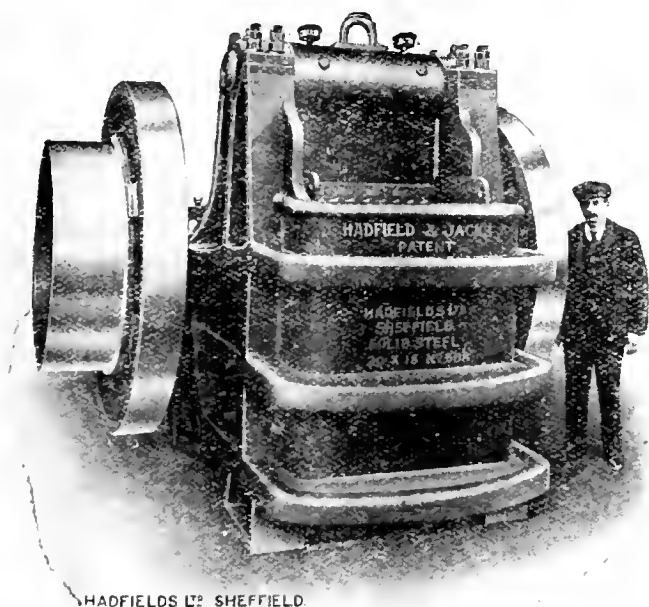
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SCIENTIFIC AND INDUSTRIAL RESEARCH.—II.

THE following is the continuation of the summary of the report of the Special Committee on Industrial and Textile Research:—

At the present time activity is as marked in the field of ideas as it is in the field of war. The action of the Government in setting up the new machinery for the encouragement of research was accompanied, if not instigated, by vigorous discussion and debate in the public Press and the learned societies. The useful work which the Royal Society has done for the Government during the war by means of a series of special committees, and the attempts of societies such as the Chemical Society and the Society of Chemical Industry, to arouse an interest in the application of science to industry and the importance of organised effort, led the Royal Society to establish a Board of Scientific Societies. Such a scheme cannot fail to be of value both to science and to the Council's labours. The British Science Guild has put forth an emphatic manifesto on the importance of science and the need of educational reform. The Teachers' Guild has appointed an Education Reform Council, including representatives of science, industry and commerce, while Sir Ray Lankester formed a Committee on the Neglect of Science to deal with science in the public schools, the older universities, and the examinations for the Civil Service. The professors of the Imperial College have presented to the Lord President, as Chairman of their Governors, a memorial dealing comprehensively with the need for a national policy and for a larger output of trained men of science, and at a recent meeting of the Governors of the College he announced that it was the intention of the Government to appoint a special committee under his chairmanship to inquire into the position of natural science in our educational system. At a later date Mr. Henderson made the further announcement in the House of Commons that there would be a reviewing committee which would consider the recommendations of the proposed special committees on science and any other similar committees which might be established to deal with particular aspects of education. The Advisory Council has been able to assist in the production of special glasses, the making of porcelain for chemical ware and pyrometer tubes, and the erection of research laboratories and workshops in connection with the Stoke School of Pottery. Before the war both earthenware and the cheaper kinds of "bone china" were being driven out of the world markets by the hard continental porcelain, and in June last year the Staffordshire potters appealed to the Board of Trade for assistance in developing the manufacture of hard porcelain to compete with the German and Austrian wares, with the result that the Advisory Council, after full investigation, recommended a capital grant, as well as an annual grant of £2,000 a year for this purpose. Another industry which has suffered much from foreign competition is that of silk. The Silk Association formed a strong representative Research Committee, and the first of a long list of problems is now to be attacked at the Imperial College. There is growing evidence that many of the most enlightened firms engaged in prosperous industries are alive to the need for long views. The engineering trades have always been able to hold their own, yet they had become convinced before the war that association was necessary, especially in the markets of China and Russia, if they were to compete successfully with Germany. The Council understands that the British Engineers' Association, like the British Electrical and Allied Manufacturers' Association, intends to include the prosecution of research among its activities. The so-called price associations are likely in many cases to extend their functions in this way. In other cases special organisation may be necessary. Representatives of over 100 firms engaged in chemical industries have resolved "that it is desirable that British firms engaged in the chemical and allied trades should form an association to promote closer co-operation, and to place before the Government the views of the chemical trade generally: to further industrial research; and to facilitate closer co-operation between chemical manufacturers and various universities and technical schools." A Council for organising the British engineering industry formed in Manchester last year has recently combined with the British Engineers' Association; it appointed a committee to consider engineering education and research which has declared it to be one of its functions "to develop co-operation between engineering firms on the one hand and universities and technical colleges on the other, so as to establish such 'schools of thought' as exist in the research departments of great continental and American engineering firms, but cannot be fostered in the comparatively small establishments (and smaller research departments) of most British engineering concerns." This sentence strikes a new note, for it bases the need for co-operation upon the comparatively small scale of British commercial enterprises. The Council has found that many scientific industries are completely without any effective trade associations through which their common manufacturing interests and difficulties can be approached. It is evident, however, that the difficulties of tradition, trade organisation, and national temperament which stand in the way of combination must be squarely faced if progress is to be made. Even those trade associations which exist have hitherto shown but a moderate appreciation of the necessity for research as a means of keeping command of the market, unless they see their trade in actual danger. So long as an industry was prosperous it was

apt to take short views and feel little enthusiasm for systematic research, especially if the firms it comprised were small, or if the capital engaged had a speculative value on the Stock Exchange. The Council has sometimes found that manufacturers were unwilling to try new developments because they appeared to lack any ambition for extension so long as their existing plant was fully occupied. A good deal of the inertia which British manufacturers have shown towards research may have been due to a realisation, partly instinctive perhaps, but partly based on experience, that research on the small scale they could afford was at best a doubtful proposition. This is one of the principal impediments in the way of the organisation of research, with a view to the conduct of those long and complicated investigations which are necessary for the solution of the fundamental problems lying at the basis of our staple industries. The Council is aware, however, that there are substantial considerations in the minds of many manufacturers which lead them to hesitate in expending large sums for research of a comprehensive kind. They have complained that the recent substitution of the joint stock bank for private banks has hampered enterprise, because the modern bank authorities are not acquainted with the personnel and policy of local firms and are not prepared to finance new undertakings and developments in the same way that the private banks did. It has been said that it is no longer possible for a man to raise money on his character, and that the conservatism of English banking, for which there is good reason and justification, makes it peculiarly difficult for any but the largest British manufacturing firms to compete successfully for contracts in foreign markets where long credit is often customary. This difficulty led the British Engineers' Association shortly before the war to take steps to form an Engineers' Trust, which would be supported by the firms belonging to the Association and furnish the necessary credit, and the Board of Trade has established a Committee "to consider the best means of meeting the needs of British firms after the war as regards financial facilities for trade, particularly with reference to the financing of large overseas contracts, and to prepare a detailed scheme for the purpose." Great businesses can afford a run of unsuccessful trials, because in the end a solution will pay all the costs and put them ahead of their competitors. Powerful joint stock companies generally look forward to a distant future, and pursue a far-seeing policy. "They are seldom willing to sacrifice their reputation for the sake of a temporary gain; they are not inclined to drive such extremely hard bargains with their employees as will make their service unpopular." This last point is of great importance, for the assistance and goodwill of the worker are essential to the promotion of industrial research. The Council has repeatedly been told, when it has urged the necessity for expenditure upon research with a view to improvements and developments, that there is no security that new ventures will not be left, when peace comes, to shift for themselves as best they may in face of the highly organised competition of our enemies. Organisation can only be fought by counter organisation, and so long as the Englishman treats his business house as his business castle, adding to its original plan here and there as necessity or inclination directs, with his hand against the hand of every other baron in his trade and no personal interest in the foreign politics of his industry as a whole, it will be as impossible for the State to save him, whether by research or other means, as it would have been for King Stephen to conduct a campaign abroad. In the main the State can only effectively help those who help themselves. It appears to be incontrovertible, however, that for those industries at least which are essential to the conduct of other important national activities and which are both scientific in their character and relatively small in bulk, there is very little chance of survival unless special means are taken by the State to safeguard them. These are the scientific industries—sometimes called key or pivotal or master industries—which can never employ a large proportion of the population because the bulk of their products needed for the world trade is inconsiderable; and yet without them many other trades would languish or die. If a particular product is essential to the national safety the case for State action will be stronger than if it is not. If the trade to which the product is a "key" is relatively unimportant the case will be relatively weak. It may be desirable for the State to take special pains to encourage those scientific industries which are recognised to be essential to the national well-being, and to assume a greater responsibility for the cost of the necessary research for these industries than would in ordinary cases be admissible.

(To be concluded.)

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Engineering Notes and News.

THE RELATIVE EFFICIENCY OF BLASTING GELATINE AND GELIGNITE IN RAND HAND DRILL STOPES.

At the last meeting of the South African Institution of Engineers, the following discussion was communicated on behalf of Mr. Wm. Cullen:—I have read this paper with the greatest interest, and I have often wondered why such work had never been carried out by the mines in their own interests. They know the precise consumption of cyanide, zinc, oil, candles, etc., per ton of ore mined and milled, and these consumptions have been more or less standardised, both along the lines of investigation and experience. Of course it was never one of the duties of the makers of explosives to advocate economy in explosives—quite the opposite—but it is to the credit of some that they have actually gone out of their way to show how economies could be effected. My friend and late business rival, who is the author of the Lig-Dyn primer idea, and who is now doing such splendid service for our country, was, I am quite sure, very sincere when he advocated the general use of these primers as a means of effecting economy in explosives, and had the war not intervened his views would have been placed before you in the form of a paper, the gist of which he explained to me. I disagreed with his ideas two years ago, and I disagree with them to-day, quite apart from the very clear knock on the head which Mr. Simpson has given them. I cannot go into the matter now, because I have no records to consult, but in the fulness of time, when my friend reads his deferred paper, I shall make it my business to consult these records. However, I may say now that careful experiments conducted under actual mining conditions, and covering a long period of time, showed that there was no advantage in the way of economy by using a primer of Lig-Dyn. In this connection it may be of interest to the Institution to know that an idea somewhat akin to this was in general use in Kimberley some 30 to 35 years ago. For some reason, which I cannot at present recall, it was decided at this time to use a certain amount of blasting gelatine in the diamond mines. The trials were not a success, blasting gelatine as made in those days being a very different thing from the product of to-day, containing as it did a high percentage of collodion cotton, and being therefore somewhat insensitive. A blasting expert, named Bell, well known in Kimberley in the old times, suggested the use of a primer of No. 1 dynamite, or kieselguhr dynamite, and all the difficulties immediately vanished. Things, however, are somewhat different to-day, as I have just said. Coming now to the experiments themselves. I find it very difficult to criticise either the methods or the conclusions. Apart from small differences, the methods were practically the same as those employed by my own company during the past ten years. Quite early after the war we recognised that individual tests were no guide whatsoever, and even when they were carried out under

actual mining conditions—i.e., on the basis of a man on contract having to pay the fixed price for his explosives and not being penalised through the employment of experimental batches—the difficulty of arriving at a definite conclusion was sufficiently great. In one case such experiments were spread over a period of more than two years before the trial explosive was put on the market, and even now, after an interval of years, there are still some points which are very obscure. The truth is that though all of us talk very glibly about velocity of detonation, sensitiveness, the factor of safety, etc., we really understand very little of what these terms mean when applied to the practical work of blasting. For years many of us have been trying to interpret in practice certain easily ascertained physical data, but so far we have only been able to generalise. The same remark applies to a prodigious amount of work which has been carried out along similar lines by some American friends. I feel less disposed to-day, therefore, to dogmatise than ever I did before, except on the one point that even though we accept the author's conclusions absolutely, they will only hold for the particular mine on which they were carried out. Nay, I would go further, and say that they may only hold for his particular stopes. Some years ago I made a very serious attempt to collect data with regard to consumption of explosives here in order to have a comparison made with data in the United States. Many interesting facts were disclosed, but for reasons which became very obvious as the enquiry progressed it was found quite impossible to make a comparison which would have been of the slightest value. It simply comes to this, therefore, that we must standardise our own methods, adapting them to new conditions as they arise. I shall not attempt to dispute Mr. Simpson's conclusions. Indeed, on the basis of the facts, we must accept them, but I should feel very much surprised if they applied to mines much further east. I might even hazard the opinion that they will not apply to a large number of mines on the Central Rand, and they will not apply at all to those

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east of the Nourse or Goldenhuis. A good many years ago my company decided, after very carefully conducted experiments on the lines followed by Mr. Simpson, to introduce a new explosive from which great things were expected. I shall not disclose what it was, beyond stating that it was a substitute for blasting gelatine. The experiments were all carried out on mines of the East Rand, and were uniformly successful. Quite as an afterthought we decided to go further west, and accordingly fresh experiments were undertaken. I may say that on the mine on which trials were carried out the experiments proved a complete fiasco, and blasting gelatine, or something very like it, is still the only suitable explosive for that mine, notwithstanding the fact that the stopes are fairly wide. This put me "wise," and to-day, as I have already said, I am less inclined than ever to dogmatise. In order to eliminate every possible chance of failure an explosive which was recently introduced was tried under all sorts of conditions, and stood the test. I should not be the least surprised to learn, however, that under some conditions it will not do the work it is expected to perform. Undoubtedly the only explosive suitable for our economic conditions is one of the gelatinous type, and Mr. Simpson has done good service in focussing attention on this point. Explosives used per ton or per fathom is not everything in the economics of mining. One can only reach definite conclusions when a proper balance sheet is made out, and the biggest item on the debit side of such a balance sheet is the cost of drilling, and on this ground alone anything of the nature of Lig-Dyn must stand condemned—even a Lig-Dyn primer. However, I object to the use of these primers on the grounds of safety, but I have elaborated my views on this point on other occasions.

By-Product Recovery in the U.S.A.

The iron industry of the U.S.A. is rapidly adopting the by-product coking process. There are practically no by-product coke plants in the United States which do not recover ammonia, tar and light oil (crude benzol). In the vast majority of the plants also surplus gas is recovered and utilised either at the plant itself, or by distribution to outside consumers. There is not over 5 per cent. of the by-product coke-oven capacity of the country that is not now equipped with benzol recovery plants, and the by-product coking plants now under construction have either contracted for benzol recovery equipment, or indicated a strong probability that such provision will be made. Mr. J. E. Johnson states that, assuming that coking coal costs \$2.10 delivered at the works, if this were coked in old-fashioned ovens, the yield would be about 60 per cent., and the coking cost would be about 60 cents. per ton of coke; coke, therefore, would cost \$4.10 per ton, and this cost would represent less than 60 per cent. of the heat value of the fuel. The same coke in modern by-product ovens would

yield 70 per cent. of good screened coke, and the coking cost would be about 75 cents. per ton of coke, so that coke would cost \$3.75 per ton. There are, however, some important deductions from this figure. The gas can be sold to the steel works for heating furnaces, the tar and ammonia are recovered (the latter in the form of ammonium sulphate) and sold; while under present, and, probably, future conditions, the benzol can be recovered at a handsome profit also. The value of these by-products varies with the location, but is seldom or never less than one dollar per ton of coal. In a region of high-priced fuel such as has been assumed, 1.50 dollars per ton of coke would be a safe estimate. This would reduce the cost of coke to 2.25 dollars per ton; in other words, under such circumstances a ton of coke would cost little more than a ton of coal, in spite of the loss of weight and the cost of the operation. Cases exist in which the coke actually costs less per ton than the coal from which it is made, the value of the by-products making up all the losses and paying all the costs of the operation. Admitting that there are considerable technical advantages in the use of gaseous fuel for power development, it is obvious that these may be commercially realised much more easily when the gasification is done in the blast furnace with a thermal efficiency of 90 per cent., and without labour and capital charges, than they can when the efficiency of gasification is 65 per cent. and the cost 50 cents. per ton of fuel, as in the gas producer.—*Metallurgical and Chemical Engineering.*

Glasgow and South African Co.

The report of the Glasgow and South African Company for the year to June 30 shows a loss on working of £54, which reduces the credit balance brought forward to £411. The directors report that an outbreak of East Coast fever among the cattle on the Brook farm occurred last autumn. The Minister of Agriculture then ordered that a dipping tank be erected and the farm completely fenced in order to avoid the spreading of the outbreak. This was accordingly done at a cost of £200. According to the law the farm must remain in quarantine until the expiry of fifteen months after the last outbreak, which occurred on January 25 last.

Economy in Lubricating Oil.

As the result of an inquiry set on foot in Germany, with a view to economy in the use of lubricating oil, it has been found that the cylinders of steam engines require a supply of oil per hour represented by the expression $r d s n$, in which d is the diameter of the low-pressure cylinder in metres, s the stroke in metres, n the revolutions per minute, and r a coefficient depending upon the type of engine, the system of lubrication, and, still more, the skill of the attendant. The unit by which the oil is measured is not stated. The values found for r very between 1.275 and 1.633, and apparently the latter figure need never be exceeded, whilst a value of unity, or even less, is believed to be attainable. The formula agrees with practical results where the attendants are skilful and attentive, but in many cases the consumption of oil has been found to exceed by 30 to 90 per cent. the calculated value (using $r = 1.6$). Consequently economies have been put in hand, and the result has been a general reduction of consumption of oil—47% in the case of cylinders and 61 per cent. in the case of bearings. Thus Germany has been able to dispense with the importation of lubricants from Russia, representing in 1909 a value of 1½ millions sterling.

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DAGGAFONTEIN MINES, LIMITED.

(Incorporated in the Transvaal.)

NOTICE TO SHAREHOLDERS.

First Ordinary General Meeting.

NOTICE IS HEREBY GIVEN that the FIRST ORDINARY GENERAL MEETING OF SHAREHOLDERS in the above Company will be held in the Company's Board Room, Second Floor, "The Corner House," Johannesburg, on Friday, the 15th day of December, 1916, at 10.30 o'clock in the forenoon, for the following business:—

1. To receive the Reports of the Directors and Auditors, and to consider the Balance Sheet for the period ended 31st August, 1916.
2. To fix the remuneration for the past audit, and to appoint Auditors to hold office until the next Annual General Meeting.
3. To transact such other business as may be transacted at an Ordinary General Meeting.

The London Transfer Registers of the Company will be closed from the 14th November to the 18th November, 1916, and the Head Office Transfer Registers from the 11th December to the 30th December, 1916, all days inclusive.

By Order of the Board,

THE CONSOLIDATED MINES SELECTION COMPANY,
LTD. (ENG.),

Secretaries.

Per A. F. LYALL.

Postal Address: P.O. Box 1046.

Head Office: Second Floor, "The Corner House," Johannesburg.
9th October, 1916.

DAGGAFONTEIN MINES, LIMITED.
(Incorporated in the Transvaal.)

REPORT OF THE DIRECTORS

For the Period ended 31st August, 1916.

To be submitted at the First Ordinary General Meeting of Shareholders, to be held in the Company's Board Room, Second Floor, "The Corner House," Johannesburg, on Friday, the 15th day of December, 1916, at 10.30 a.m.

To the Shareholders.

DAGGAFONTEIN MINES, LIMITED.

Gentlemen.—Your Directors beg to submit their Report, together with the Reports of your Consulting Engineer and Mine Manager, also the Audited Financial Statements for the period ended 31st August, 1916.

The First General Meeting of Shareholders has been called for the 15th December in order to comply with Section 61 of the Transvaal Companies Act, which prescribes that a meeting of Shareholders must be held once in each calendar year.

As you are no doubt aware, in terms of the Articles of Association, the financial year of the Company ends on the 31st December. The Books will therefore again be closed at the end of the current year.

REGISTRATION.

Your Company was registered under the Transvaal Companies Act, 1909, on the 28th March, 1916

FLOTATION AGREEMENTS.

In terms of Article 3 of the Company's Articles of Association, the following agreements were entered into on the 10th day of April, 1916 :—

- 1. With The Daggafontein Gold Mining Company, Limited, as Vendors.
- 2. With The Consolidated Mines Selection Company, Limited, for the provision of working capital.

CAPITAL.

The Capital of your Company stands at £530,000, divided into 530,000 shares of £1 each, allocated as follows :—

	Shares.
1. Issued as fully paid to Vendors in terms of Agreement No. 1	398,033
2. Issued at par to The Consolidated Mines Selection Company and nominees in terms of Agreement No. 2	100,000
3. Held in reserve	31,967
	<u>530,000</u>

Under the agreement with The Consolidated Mines Selection Company, that Company undertakes, when called upon, within a period of two years, to provide £200,000 further working capital against the issue at par of 200,000 shares. The agreements also cover the following options granted :—

To The Daggafontein Gold Mining Co., Ltd. :—	Shares.
For three years at par on	134,126
To The Consolidated Mines Selection Co., Ltd. :—	Shares.
For three years at par on	115,871
For four years at 22s. 6d. on	125,000
For five years at 25s. on	125,000
	<u>365,871</u>
Total number of shares under option	<u>500,000</u>

The periods of the above undertaking and options are calculated from 28th March, 1916.

In order to enable your Directors to give effect to the provisions of the agreements, they are empowered under the Articles to increase the Capital of the Company by £670,000.

PROPERTY AND ASSETS.

The Assets acquired from the Vendors were as follows :—

Freehold portion of the Farm Daggafontein No. 25, situated in the mining district of Boksburg, Transvaal, in extent 4,363 morgen 326 square roods. The property has been transferred into the name of your Company, and the titles are in order.

Discoverer's Claims, numbered 1 to 179, situated on the Farm Daggafontein No. 25, held under Discoverer's Certificate No. 236. The claims have been registered in the name of your Company.

In addition to the above, the Company acquired certain fixed and liquid assets, which are included in the appended summary of assets taken over :—

Freehold portion Farm Daggafontein No. 25 and 179 Discoverer's Claims	£53,295	6	1
Farm Buildings and Improvements	769	0	0
Shaft, Boreholes, Buildings and Surface Equipment	341,590	18	7
Stores and Materials	1,921	6	10
Cash	516	8	6
	<u>£398,033</u>	<u>0</u>	<u>0</u>

The values placed against the assets are those appearing on the schedules received from the Vendors, and, with the exception of the freehold property, represent actual expenditure. The value placed against the property is an arbitrary figure arrived at by deducting the actual expenditure on shaft, buildings, etc., etc., from the total consideration paid to the Vendors

FINANCE.

The actual cash receipts and expenditure from the inception of your Company to the 31st August were as follows :—

	RECEIPTS.	
Working Capital		
64,500 shares, 10s. paid	£32,250	0 0
35,500 shares, fully paid	35,500	0 0
	<u>£67,750</u>	<u>0 0</u>
100,000 shares.		
Cash taken over from Vendors	516	8 6
Sale of Surplus Water	97	2 3
Interest received and Sundry Revenue	435	14 4
	<u>£68,799</u>	<u>5 1</u>
	EXPENDITURE	
Transfer Duty, etc.	£8,440	7 4
Shaft Sinking, Permanent Haulage Ways and Equipment	28,897	9 6
General Expenses		
Capital Duty	21,325	0 0
Preliminary Expenses, etc.	4,152	8 11
	<u>5,477</u>	<u>8 11</u>
Balance, being Cash and Cash Assets after deducting Sundry Creditors	25,983	19 4
	<u>£68,799</u>	<u>5 1</u>

It will be noted that of the assets taken over from the Vendor Company cash only has been included in the above statement. Surplus water pumped from the mine is disposed of to the Rand Water Board under agreement

Daggafontein Mines, Limited.—continued.

OPERATIONS.

Technical matters are dealt with in the Reports of your Consulting Engineer and Mine Manager.

DIRECTORATE.

Under Article 96 of the Company's Articles of Association the first Directors of the Company retain office until the Ordinary General Meeting in the year 1919.

LONDON COMMITTEE.

Under the powers vested in them by the Company's Articles of Association your Directors have appointed a Committee in London, and a Share Transfer Office has been opened at Egypt House, 36-38, New Broad Street, London, E.C.

AUDITORS.

Your Directors have appointed Mr. Alexander Aiken and Mr. Walter Ernest Goldby the first Auditors of the Company. You are requested to fix the remuneration for the past audit, and to

appoint Auditors to hold office until the next Annual General Meeting.

Mr. A. Aiken and Mr. W. E. Goldby retire, but are eligible, and offer themselves for re-election.

F. R. LYNCH (Chairman),
H. C. BOYD,
PAUL DREYFUS,
E. OPPENHEIMER,
WM. POTT,
E. A. WALLERS,

Directors.

THE CONSOLIDATED MINES SELECTION COMPANY,
LTD. (ENG.),

Secretaries.

Per A. F. LYALL.

Johannesburg, 12th October, 1916.

BALANCE SHEET, 31st AUGUST, 1916.

Dr.	
To Capital—	
Registered: ... 530,000 0 0	
530,000 Shares of £1 each, of which	
31,967 Shares are held in	
reserve.	
Issued:	
398,033 Shares of £1 each, issued	
as fully paid to Vendors 398,033 0 0	
100,000 Working Capital Shares of	
£1 each, 10s. per Share	
called up, £50,000; and	
Calls paid in advance,	
£17,750 ... 67,750 0 0	
493,033	£465,783 0 0

Note.—

I. The Consolidated Mines Selection Co., Ltd. has undertaken, when called upon within two years, to provide £200,000 further Working Capital against the issue at par of 200,000 shares.

II. The following options to subscribe for Shares of £1 each in the Capital of the Company have been granted:—

To The Daggafontein G.M. Co., Ltd.:—

For 3 years at par on ... 134,126 shares.

To The Consolidated Mines Selection Co., Ltd.:—

For 3 years at par on ... 115,874 shares.

For 4 years at 22/6 on ... 125,000 shares.

For 5 years at 25/- on ... 125,000 shares.

500,000 shares

The periods of the above undertaking and options are calculated from 28th March, 1916.

„ Sundry Creditors and Credit Balances ... 4,573 11 6

„ Revenue to date ... 532 16 7

Interest and Sundry Revenue.

Contingent Liabilities:—

Witwatersrand Native Labour Association, Ltd.—55 Shares at 8s per Share ... £22

Native Recruiting Corporation, Ltd.—12s. 6d. per head uncalled on complement of 522 Natives ... 326 5

£248 5

Machinery Orders and Construction Contracts outstanding.

£474,889 8 1

Cr.	
By Property—	
Acquired from Vendors ... £53,295 6 1	
Expenditure re Transfer ... 8,440 7 4	
£61,735 13 5	
„ Estate Buildings and Improvements	
Acquired from Vendors.	709 0 0
„ Expenditure on Shaft Sinking, Permanent Haulage Ways and Equipment to date—	
Acquired from Vendors ... 341,590 18 7	
Expenditure to date ... 28,897 9 6	
(As per attached schedule.)	370,488 8 1
„ General Expenditure to date—	
General Charges, including Capital Duty and Preliminary Expenses ... 3,093 16 7	
Directors' Auditors' and Administration Fees ... 1,831 13 4	
London Agency Expenses ... 551 19 0	
5,477 8 11	
„ Shares and Interest in other concerns at cost—	
Witwatersrand Native Labour Association, Ltd.—55 Shares, 12s. per Share paid and 25s. deposit	101 15 0
Native Recruiting Corporation, Ltd.—3 Shares of £1 each and deposit of 7s. 6d. per head on	
Native Complement ... 193 15 0	
300 10 0	
„ Stores and Materials on hand ... 10,887 5 10	
(Acquired from Vendors £1,921 6s. 10d.)	
„ Sundry Debtors and Debit Balances ... 723 1 7	
„ Cash ... 24,568 0 3	
At Bankers and in hand.	
(Acquired from Vendors £516 8s 6d.)	

£474,889 8 1

The Consolidated Mines Selection Co., Ltd. (Eng.), Secretaries
Per A. F. LYALL

To the Shareholders.

DAGGAFONTEIN MINES, LTD.

We report that we have examined the above Balance Sheet with the Books and Vouchers of the Company, and the audited returns from the London Office, and have obtained all the information and explanations we have required. In our opinion, such Balance Sheet is full and fair, and contains the particulars required by the Articles of Association, and is properly drawn up so as to exhibit a true and correct view of the Company's affairs, according to the best of our information and the explanations given us and as shown by the Books of the Company.

Johannesburg, 12th October, 1916

F. R. LYNCH (Chairman),
PAUL DREYFUS
E. A. WALLERS

Directors

W. E. GOLDBY,
ALEX. AIKEN,
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Box 785, Cape Town.

**GOVERNMENT COMMISSION
ON STATE MINING**

It is notified for general information that the above Commission is at present sitting at the New Law Courts, Johannesburg. Anyone desirous of giving evidence before the Commission is invited to communicate with the Commission's Secretary, Room 20, New Law Courts, stating the chief points upon which he wishes to give evidence. The Commission will then decide whether it will hear any of those persons who wish to appear before it.

The Commission is appointed to report to His Excellency the Governor-General upon (1) the advisability of State Mining; (2) the financing, organisation, and control of State Mines, if such mines are created; (3) any legislative steps required.

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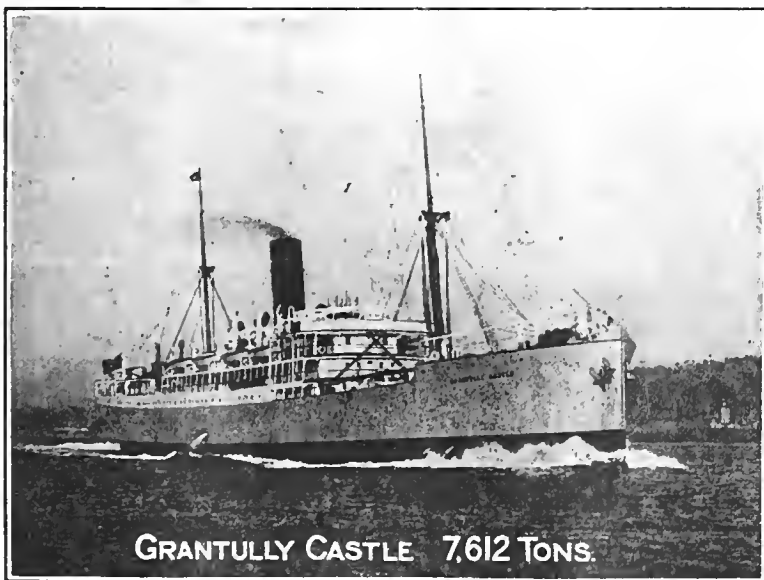
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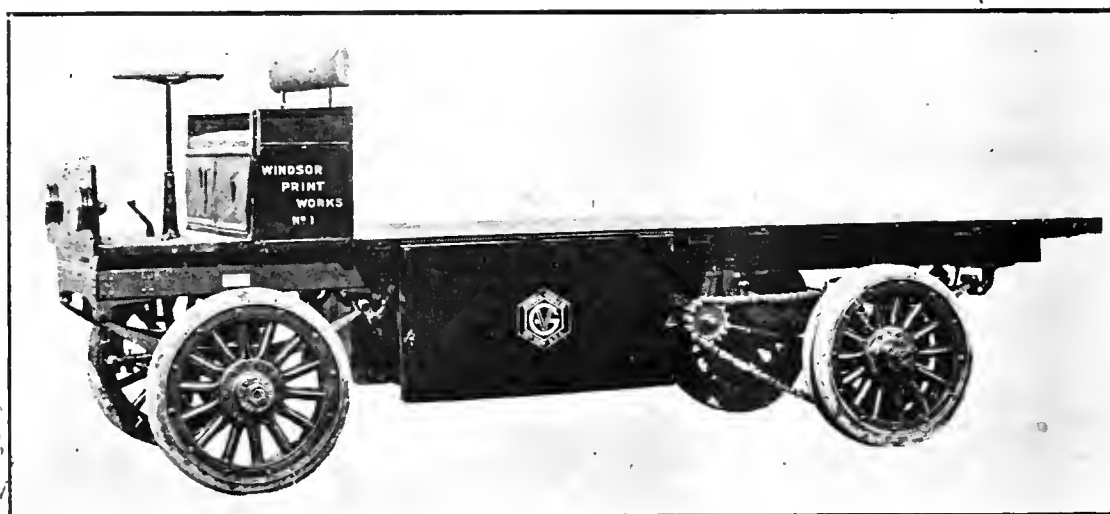
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